KARAGANIS & WHITE LTD.
ATTORNEYS AT LAW
414 NORTH ORLEANS STREET-SUITE 810
CHICAGO, ILLINOIS 60610
TELEPHONE
(312) 836-1177
TELEFAX
(312) 836-9083

JOSEPH V. KARAGANIS
A. BRUCE WHITE
BARBARA ANNE MAGEL
MARK D. ERZEN
ELLEN LOIS ZISOOK
JAMES D. BRUSSLAN
JANICE E HICKS

DANIEL SWARTZMAN
OF COUNSEL

October 17, 1990

Barbara Russell
RCRA Enforcement Unit
5HR-12
U.S.EPA Region V
230 South Dearborn Street
Chicago, Illinois 60604

Re: Closure Information - Croda Inks, Niles, Illinois Facility

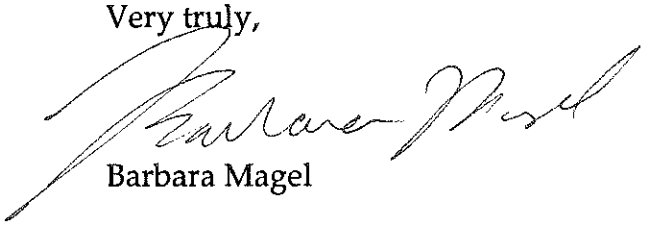
Dear Ms Russell:

Enclosed please find a copy of the Closure Plan submitted to the Illinois Environmental Protection Agency for the container storage area and underground tank at the Croda Inks, Niles, Illinois facility. As I indicated during our phone conversation, all elements of the closure activities, including removal and proper disposal of all containers, removal of the underground tank and surrounding soils, testing of soils and cleaning of the storage pad have been completed with IEPA concurrence.

A question does remain as to the use of Attachment 7 for volatile compounds analysis which relates to the detection of methylene chloride in certain samples. Croda has never used methylene chloride at the facility and the compound was also detected in the laboratory blanks. At this point, Croda is re-analyzing several samples to determine if methylene chloride is in fact present. Once that issue is resolved, Croda believes it will have completed closure in accordance with all of IEPA's requirements.

I have also enclosed a copy of the sample results obtained through the closure activities for your information. If you have any questions with respect to the enclosed materials, please feel free to give me a call. I apologize for not providing you with these materials earlier.

Very truly,



Barbara Magel

0253-0880(1)

WARZYN

Engineers & Scientists
Environmental Services
Waste Management
Water Resources
Site Development
Special Structures
Geotechnical Analysis

October 6, 1989
40045

Mr. Lawrence W. Eastep, P.E.
Manager - Permit Section
Division of Land Pollution Control
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62794-9276

RE: Revised Closure Plan
Croda Inks Corporation
Niles, Illinois

Dear Mr. Eastep:

Enclosed are four copies of the revised Closure Plan for the Croda Inks Corporation (Croda) requested by the Illinois Environmental Protection Agency (IEPA) in its August 31, 1989 letter to Croda. Presented below is Croda's response to each of the deficiency items listed in the IEPA's August 31, 1989 letter to Croda:

1. Description of the Waste Management Units. The drum storage area has been designated as S01 and the former underground storage tank (UST) as S02 and will be closed as two separate units. Separate "Description" and "Location of Samples" discussions have been included for each storage unit (i.e., Refer to Sections 1.4, 1.5, 2.2 and 2.3 in the Closure Plan).

2. Map of Facility. Figure 3 (i.e., Proposed Boring Location Map) is a schematic map, drawn to scale, of the facility which designates both storage units and other items of interest. Figure 1 is a United States Geologic Survey (USGS) map of the area which designates the township, range, etc. Section 1.3.1 of the Closure Plan also lists the township, range etc.

3. Detailed Drawing of the Unit(s). Refer to Item 2 above.

Warzyn Engineering Inc.
2100 Corporate Drive
Addison, Illinois 60101
(708) 691-5000
FAX: 691-5133

4. Decontamination of Tanks, Structures and Soils. Since the former UST was already removed in December of 1988, this section is not applicable. Potential remediation alternatives are discussed in Section 4.3 of the Closure Plan.

5. Soil Cleanup Levels. The IEPA's March 2, 1989 Closure Plan Instructions lists the clean closure final objectives as "drinkable leachate" and "edible soils." It goes on to reference the United States Environmental Protection Agency's (U.S. EPA) "Surface Impoundment Clean Closure Guidance Manual" as a reference document, as well as outline potential exposure pathways and required background information. The exposure assessment and resulting soil cleanup levels presented in the Closure Plan have been based on the referenced U.S. EPA document, as well as other applicable U.S. EPA guidance manuals used to evaluate Comprehensive Environmental Recovery, Compensation and Liability Act (CERCLA) and RCRA sites. The soil cleanup levels presented in the Closure Plan have also been designed to meet the clean closure criteria presented in IEPA's Closure Plan Instructions. The wording of the Closure Plan also allows for the modification of the soil cleanup levels if additional contaminants or potential exposure pathways are identified.

   The IEPA has approved soil cleanup criteria prior to soil sampling at other sites. Sufficient information is already available regarding potential contaminants, regional hydrogeology and water usage and potential exposure pathways to develop soil cleanup criteria for the Croda site prior to performing the Closure Plan soil sampling activities. The exposure assessment approach used in the Closure Plan appears to be more applicable and relevant in the development of cleanup criteria for the soils present at the Croda site than fish bioassy toxicity data (e.g., 0.1 times the 96 hour TLM) typically used by the IEPA. If the IEPA elects not to accept the soil cleanup criteria presented in the Closure Plan, Croda would request that the IEPA provide, in writing, the basis for that decision.

6. Sampling Plan and Analytical Methods. The following is the response to individual items mentioned in this section:

   - Three borings have been located in the former UST area. Refer to Figure 3 and Sections 2.2 and 2.3 for the modified proposed boring locations;

   - The five drum storage area borings will be located where the most significant surface deterioration has occurred. The Closure Plan has been revised to reflect this modification;

- Refer to Section 2.5 of the Closure Plan for arguments concerning the use of split spoon sampling for volatile organic compounds (VOCs) in lieu of sampling methods presented in Attachment 7 of the IEPA's Closure Plan Instructions;

- Including both total lead and chromium and E.P. Toxicity for lead and chromium in the sampling plan would incrementally increase the Closure Plan cost estimate by approximately $17,000 to $36,000. Based on the relative immobility of lead and chromium in clay soil environments, as well as the low levels of lead and chromium detected in laboratory analyses presented in the Appendices of the Closure Plan, analysis for VOCs and PNAs should be sufficient to assess the area for potential contamination and establish necessary cleanup criteria. It should also be noted that the IEPA has recently approved a Closure Plan for a paint manufacturing facility, currently being performed by Warzyn Engineering Inc. (Warzyn), which only requires soil samples to be analyzed for VOCs. The waste streams generated by Croda are very similar to those generated by the paint manufacturing facility since identical types of pigments, solvents and other raw materials are used in the manufacture of both paint and ink products (refer to Section 2.1 of the Closure Plan for a more detailed discussion).

- Since it was not known if the stockpiled soil had been contaminated by the contents of the UST at the time of the UST removal, and the soil was immediately containerized once a hazardous waste determination was made, the bare ground area where the stockpiled soil was stored should not be part of the Closure Plan. The analytical results of the stockpiled soil show that no hazardous waste characteristic criteria were exceeded, and that xylene and toluene levels detected are well below typical levels found in non-hazardous gasoline-contaminated soil. The stockpiled soil was covered with plastic prior to being containerized in order to minimize rainwater infiltration. Based on the levels of VOCs detected in the stockpiled soil, it is not likely that the bare ground underneath the stockpiled soil would have been impacted by the presence of the soil. Refer to Section 2.3 of the Closure Plan for a more detailed discussion.

7. Certification Statement. A copy of the required certification documents has been included in Appendix F of the Closure Plan.

8. Signatory Requirements. A signed copy of the Closure Plan Certification Statement has been included in Appendix F of each of the enclosed Closure Plans.

Since it is expected to take more than 180 days to complete the closure process, an extension is requested as part of the IEPA approval of the Closure Plan. If you have questions regarding the contents of this letter or the Revised Closure Plan, please contact Mr. Mark Rothas of Warzyn at (312) 691-5064. Representatives of Croda would also be willing to meet with the IEPA to discuss the contents of the Closure Plan.

Sincerely,

WARZYN ENGINEERING INC.

Mark Rothas

Mark S. Rothas
Senior Project Engineer

[WP3]
40045L12MSR/dms/JAH

WARZYN

C254-C[illegible]

WARZYN

Report
Project No. 40045.02

Revised Closure Plan
Croda Inks Corporation
Niles, Illinois

Prepared for:

Croda Inks Corporation
Niles, Illinois

Prepared by:

Warzyn Engineering Inc.
Chicago, Illinois

October 1989

REVISED CLOSURE PLAN FOR CRODA INKS CORPORATION NILES, ILLINOIS FACILITY

Prepared For:

CRODA INKS CORPORATION

Prepared by:

WARZYN ENGINEERING INC.
2100 Corporate Drive
Addison, Illinois 60101

October 6, 1989

WARZYN

TABLE OF CONTENTS

WARZYN

TABLE OF CONTENTS
(continued)

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

SECTION 1
INTRODUCTION

1.1 Regulatory Status

The Croda Inks Corporation (Croda) is submitting this closure plan to the Illinois Environmental Protection Agency (IEPA) with the intention of returning the status of its Niles, Illinois facility to a Resource Conservation and Recovery Act (RCRA) hazardous waste generator. The facility's drum and former underground tank storage areas have been designated as RCRA storage units based on cited deficiencies in the large quantity generator 90-day storage time limit. The deficiencies are outlined in an April 17, 1989 enforcement letter from the IEPA to Croda as a result of a March 28, 1989 IEPA inspection of the facility.

The hazardous waste drum (S01) and former underground tank (S02) storage areas will be closed in accordance with the closure performance standards presented in Title 35, Subtitle G, Section 725.211 of the State of Illinois Rules and Regulations. The criteria used to determine "clean closure" are presented in Section 4.2 ("Soil Removal Criteria"). All hazardous waste storage activities will be discontinued in the area during the closure period. Soil potentially impacted by surface spills of hazardous wastes will be remediated to the extent necessary to protect human health and the environment. Future hazardous waste generation will be disposed of within the required generator storage time allowance. Following the completion of closure activities, the drum storage area will either be used for general storage, or continue to be utilized as a 90-day large quantity generator hazardous waste drum storage area.

Since the drum storage area is believed to have always been asphalt paved, a phased soil sampling approach is being recommended. Sampled soil borings down to 10 feet will be initially performed. If necessary, based on the results of the initial soil sampling, a scope of work outlining additional soil sampling and/or the installation of groundwater monitoring wells will be prepared.

1.2 Description of Facility

Croda's Niles, Illinois facility (Refer to Figure 1 for United States Geologic Survey Map) primarily manufactures made-to-order small batch flexible packaging printing inks and adhesives (SIC Codes 2891 and 2893), primarily for the food and soft drink industries. The facility was built around 1964, and is believed to have always been an ink manufacturing operation. Prior to 1978, the facility was not owned and operated by Croda. The primary raw materials used in past and present operations include aliphatic, aromatic and chlorinated solvents, solvent-based resins and ink bases and organic and inorganic pigments. Lead and chromium oxide pigment usage has been phased out of ink formulations manufactured at the facility within the last two years. Operations performed at the site include roller mill dispersion, blending and manual filling into 55-gallon drums and various other container sizes. Based on a review of available data for the area, the overall groundwater gradient in the surficial aquifers appears to be relatively flat, with flow probably to the west towards the North Branch of the Chicago River, which is located approximately one-half mile west of the site.

1.3 Regional Geology and Groundwater Usage

1.3.1 Site Topography

The Croda facility is located in the Northeast Quarter of the Southwest Quarter of the Northwest Quarter of Section 29, Township 41 North, Range 13 East in Cook County, Illinois. Based upon a site visit and a study of the Park Ridge, Illinois 7.5 minute topographic quadrangle map, it appears that the area surrounding the facility is highly industrialized. The area beyond these industrial facilities is densely populated and primarily occupied by residential buildings and occasional commercial buildings. A United States Geologic Survey (USGS) map showing the Croda facility and surrounding vicinity is presented in Figure 1.

The surficial topography around the site exhibits low relief with a gentle slope to the west, in the direction of the North Branch of the Chicago River. The nearest body of water is a small, unnamed pond approximately 1,100 feet south of the site. The North Branch Chicago River, located approximately one-half mile to the west, is the nearest major body of water in the vicinity of the Croda facility. The North Branch flows southward through the Chicago metropolitan area and becomes the Chicago Sanitary and Ship Canal, which flows southwestward and discharges into the Des Plaines River north of Joliet, Illinois. Natural drainage in the site vicinity has been altered by roadways and other man-made features. Surface water run-off flows from the site into storm sewers, which are believed to be routed to the North Branch Chicago River.

1.3.2 Groundwater Usage

Warzyn obtained records from the Illinois State Water Survey (ISWS) of the private wells located in Sections 19, 20, 29, 30 and 32 of Township 41 North, Range 13 East, which indicate that there are, or were, six water supply wells located in those sections. There were no well logs available for Sections 21, 28 and 31. The Croda site is located in the Southwest Quarter of Section 29 and each of the above mentioned sections was obtained in order to provide well log information within a one mile radius of the site. A map showing the approximate locations of each of the private wells is presented in Figure 2, while Appendix E contains the ISWS well logs.

In review of the six ISWS drilling logs, it was noted that four appear to have been installed at private residences, or farms; one was a municipal well for the Village of Morton Grove; and one well was on Cook County Forest Preserve District property. It is not presently known how many of the wells are still operational. Four of the wells were drawing water from the dolomitic limestone aquifer at depths of between 86 and 179 feet below ground surface, while the municipal well and one of the farm wells were drawing water from a dolomite and sandstone aquifer from between 568 and 1,462 feet below ground surface.

During a phone interview with Mr. Scott Jochim, Civil Engineer with the Village of Niles Engineering Department, Warzyn was informed that all of the commercial, industrial and residential buildings west of Lehigh Avenue and east of the Des Plaines River under the jurisdiction of the Village of Niles receive water obtained from Lake Michigan. The water is purchased by the Village of Niles from the City of Chicago and is received into their own reservior via underground pipeline. A similar conversation with Ms. Joan Anundson of the Village of Morton Grove Public Works Department disclosed that the Village of Morton Grove also purchases Lake Michigan water from the City of Chicago.

1.3.3 Regional Geology

A review of available geologic literature indicates the site is on lake plain deposits most typically formed on the floor of glacial Lake Chicago, the precursor to the current Lake Michigan (Lineback, 1979; Willman et.al., 1975; Willman, 1971). These lake plain deposits belong to the Carmi Member of the Equality Formation, deposited during the Pleistocene epoch. The soils of the Carmi were deposited during the Wisconsinan glacial stage between approximately 7,000 and 22,000 years before present (BP). The area in the vicinity of the Croda site is generally characterized by areas of low relief, formed as deposits on the floor of the glacial lake and flattened by wave action.

The Carmi Member is predominantly silt or clay interbedded with sorted sediments; it is composed primarily of sheet-like deposits of silt and clay-sized particles with localized deposits of fine sand near prehistoric lake shorelines. The thickness of the Carmi Member ranges typically between 20 and 40 feet. The relatively thin sediments of the Carmi are underlain by the Wadsworth Till of the Wedron Formation, also of Pleistocene age. The Wadsworth Till is a gray till, interbedded with sorted sediments. This till is composed primarily of silt and clay-sized particles separated by beds of

waterlaid sand, gravel and silt. The combined thickness of the unconsolidated deposits of the Carmi and Wadsworth Formations in the vicinity of the site is approximately 100 feet.

Based upon studies of the literature (Willman et.al., 1967; Suter et.al., 1959; Visocky et.al., 1985), the unconsolidated sediments in the region unconformably overlie bedrock of Silurian age. The Niagaran and Alexandrian Formation, the uppermost bedrock units expected, are a carbonate deposit which will vary from dolomite to a dolomitic limestone. The Silurian formations were most typically formed as reef deposits built while Illinois laid under a shallow sea between 400 and 435 million years BP (Levin, 1978). The thickness of the Silurian in the vicinity of the site is approximately 200 to 250 feet. Underlying the Silurian bedrock units is the approximately 200-foot thick Maquoketa Shale Group, deposited during the Ordovician period. The Maquoketa Group is composed of several individual shale formations and a limestone formation deposited approximately 435 to 600 million years BP. The older Ordovician and Cambrian bedrock units beneath the Maquoketa are composed primarily of limestones and sandstones and are typically in excess of 2,000 feet thick.

1.3.4 Regional Hydrogeology

The silts and clays of the Carmi and the till layer of the Wadsworth generally do not provide sufficient yields to be utilized as drinking water sources due to their low permeabilities. The localized interbedded sand, silt and gravel deposits can yield moderate quantities of groundwater due to higher permeabilities created by greater pore space and more extensive pore interconnections which allow for the migration of groundwater (Fetter, 1988; Freeze et.al, 1979). Recharge to the silts and clays of the Carmi and the till and associated localized sand, silt and gravel units of the Wadsworth typically occurs locally from precipitation.

The bedrock unit immediately below the unconsolidated materials in the northern Illinois area is considered a usable aquifer. Groundwater in the Niagaran and Alexandrian aquifers is primarily obtained from joints, fissures and solution cavities. These water-bearing openings are irregularly distributed both vertically and horizontally in the units. Typical groundwater wells placed in the Niagaran and Alexandrian dolomitic limestone bedrock can yield several hundred gallons per minute. Beneath the Maquoketa Shale, a low permeability unit, underlying the Silurian limestones, are the higher yielding Ordovician and Cambrian age sandstone and limestone units. These units are the most frequently used aquifers in the northeastern Illinois region.

1.4 Description of Drum Storage Area (S01)

The hazardous waste drum storage area is approximately 125 feet long by 20 feet wide and is located immediately adjacent to the eastern outside wall of the building (see Figure 3). The surface of the drum storage area is presently asphalt. A metal overhang, approximately 20 feet high, was added to protect the drum storage area from precipitation. The ground along the eastern boundary of the drum storage area is part of a yard area and is not paved (i.e. bare surface). The drum storage area is also bordered by the caustic room to the north, the building to the east and an asphalt paved parking lot to the south. The maximum volume of hazardous waste stored in 55-gallon drums and other miscellaneous smaller containers was 6100 gallons. Hazardous waste drums are presently being stored indoors (see Section 4.1) and are disposed of off-site within the 90-day accumulation time period.

1.5 Description of Former Underground Storage Tank (S02)

A 2000-gallon underground storage tank (UST) was removed from the southern corner of the drum storage area in December of 1988. The UST, required for insurance purposes, was originally installed approximately 20 years ago to collect indoor spills. The UST had been utilized for at least the last two years of its service as a hazardous waste accumulation tank. The 2000-gallon UST was filled to capacity at the time it was taken out-of-service.

1.6 Description of Hazardous Waste Generation

Prior to 1986, ink manufacturing equipment cleaning was performed using a caustic bath located in an addition to the main building on the northern end of the drum storage area. Spent caustic solution was disposed of at Chem-Clear, Inc. in Chicago, Illinois. The caustic bath was replaced with a kerosene washer unit in 1986. The unit is located in the mixing room adjacent to the main manufacturing area. The spent kerosene was regenerated and reused by allowing the solids from the ink residue to settle out in 55-gallon drums and decanting the liquid. Small volumes of predominantly toluene, xylene and methyl isobutyl ketone (MIBK) have also been used to clean the roller mills and mixing tubs.

All of the spent equipment cleaning solutions (i.e. caustic and solvent) qualify as K086 RCRA listed hazardous wastes (Ink Formulation Industry). Ink sludges, generated either from contaminated or off-specification products or settled sludges from container bottoms, are generated in small volumes on an intermittent basis. The ink sludges qualify as characteristic flammable hazardous wastes (D001). Refer to Appendix A for available RCRA hazardous waste analyses, Appendix B for Material Safety Data Sheets (MSDSs) for Croda's primary raw material and cleaning solvents and Appendix C for representative manifests for off-site disposal (including recent disposal of waste streams cited in IEPA's April 17, 1989 enforcement letter). Wastewater generated from the cleaning of equipment associated with adhesive manufacturing operations does not qualify as a hazardous waste.

1.7 Schedule for Closure

Presented below is the anticipated schedule for closure completion. The schedule allows for the excavation and disposal of potentially contaminated soil that may be found. The execution of the Closure Plan, if soil excavation is necessary, is expected to take a total of 37 weeks from the time approval of the plan is received. Since it is expected to take more than 180 days to complete the closure process, an extension is requested as part of IEPA approval of the Closure Plan.

Activity	Week Number
1. Approval of Closure Plan	0
2. Soil Sampling and Analysis	1-8
3. Submittal of Analytical Results to IEPA and IEPA Review	9-15
4. Develop Scope of Remediation	16-21
5. Permit Soil for Disposal	22-33
6. Soil Excavation/Disposal	34-36
7. Closure Report/Certification	34-37

SECTION 2
SOIL SAMPLING PLAN

2.1 Parameters to be Analyzed

The subsurface soil samples will be analyzed for parameters representative of the waste streams generated by the facility. This includes kerosene and polynuclear aromatic hydrocarbon (PNA) constituents of kerosene, as well as volatile organic compounds (VOCs) which are used as on-site cleaning solvents and/or are present as ingredients in Croda's ink formulations. Since mineral spirits is the primary solvent system used in Croda's solvent-based ink formulations, it will also be included in the parameter list. The parameters to be analyzed for in subsurface soil samples include:

- pH,
- RCRA VOCs,
- PNAs, and
- total petroleum hydrocarbons (TPH) as both kerosene and mineral spirits.

TPH as kerosene will be analyzed to verify that the source of detected PNAs are associated with waste kerosene. Other potential sources of PNA presence include leaching from the asphalt surface and the surface runoff of automotive fuels.

Since spent kerosene is the primary waste stream generated by Croda, and VOCs are potentially the most mobile of the contaminants that may be present, analyzing for these parameters should be sufficient to assess the area for the presence of potential contamination and establish necessary cleanup criteria. Since ink sludge residues only comprise approximately 10% of Croda's hazardous waste generation volume (and raw material pigments only comprise approximately 30% of the ink sludge residue volume), and heavy metals are relatively immobile in the clay soil environment at the site, total lead and chromium analysis, as well as Extraction Procedure (E.P.) Toxicity Analysis for lead and chromium, have not been included in the

sampling plan. Within the last two years, Croda has phased out most of its usage of lead and chromium oxide pigments in the ink formulations manufactured at the Niles, Illinois facility. Total lead and chromium and E.P. Toxicity for lead and chromium levels in soil samples collected from both the base of the former UST excavation (refer to Appendix D) and the excavated soil stockpiled from the UST excavation (refer to Appendix E) do not appear to be elevated, nor do they exceed RCRA hazardous waste characteristic criteria. A hazardous waste characterization analysis performed on the ink sludge removed from the former UST (Refer to Appendix A) shows E.P. Toxicity levels for lead and chromium to be well below the respective characteristic criteria for being classified as a hazardous waste.

Including both total lead and chromium and E.P. Toxicity for lead and chromium in the sampling plan would incrementally increase the Closure Plan cost estimate by approximately $17,000 to $36,000. The incremental cost estimate increase includes the addition of ten background soil borings (i.e. minimum of 20 additional soil samples) required by IEPA's March 2, 1989 Closure Plan Instructions. The $17,000 end of the cost estimate range assumes the background samples would only be analyzed for total lead and chromium and E.P. Toxicity for lead and chromium, while the $36,000 end of the range assumes the background soil samples would be analyzed for all of the sampling parameters outlined in the Closure Plan, which is usually required by the IEPA.

Based on the relative immobility of lead and chromium in clay soil environments, as well as the low levels of lead and chromium detected in the past analysis of the hazardous waste sludge previously stored in the former UST, analysis for VOCs and PNAs should be sufficient to assess the area for potential contamination and establish necessary cleanup criteria. Analysis of soils associated with the UST removal also do not show elevated levels of lead and chromium. The information that may be gained by including total

lead and chromium and E.P. Toxicity for lead and chromium in the sampling plan would not justify the resulting incremental cost increase to perform the Closure Plan.

2.2 Locations of Drum Storage Area Samples (SO1)

Due to the dimensions of the drum storage area (i.e. 100 feet by 20 feet), a regular interval linear sampling grid of five borings (B1-B5) will be located along the midline of the drum storage area. The first boring will be located approximately 15 feet south of the caustic storage tank room, and subsequent borings will be at 20-foot intervals along the midline of the drum storage area. The five drum storage area borings will be located in areas where the most significant surface deterioration has occurred. This determination will be made during soil sampling activities in the field. Even though deterioration of the asphalt surface is evident, a visual inspection of the drum storage area did not reveal any cracks or defects which expose the surface underneath it. No visual evidence of surface spills was observed on the asphalt surface. Six additional borings (B10-B14) will be located at identical intervals, approximately one to two feet east of the limit of the drum storage area, to evaluate impacts to soils from runoff of materials from the storage area. A detailed Boring Location Map is provided in Figure 3.

Soil samples will be collected with a standard 2-inch split spoon sampler (ASTM D1586) from each boring. Samples will be obtained from the intervals 6-inches to 2-feet (below the asphalt surface), 3-feet to 4.5-feet, 5.5-feet to 7-feet and 8-feet to 9.5-feet. All of the samples will be screened with an organic vapor analyzer (OVA) or photoionization detector (HNu). If OVA or HNu levels exceed background readings and/or visible evidence of releases is detected at the 8 to 9.5-foot interval, split spoon sampling (i.e. two samples per five feet) will continue to a depth of 5 feet below the absence of OVA or HNu levels in excess of background levels or visible evidence of releases.

2.3 Locations of UST Area Samples (SO2)

Three borings (B6-B8) will be located within the former UST excavation area, one at each end of the excavation and one in the middle. Boring B9 will be located outside of the fence line south of the drum storage area in order to assess potential migration of vapor and liquid phase materials originating from the former UST towards the sanitary storm sewer system situated in the main parking lot area. Boring B15 will be located approximately one to two feet east of the limit of the drum storage area in order to assess potential contamination migration in that direction.

Soil samples will be collected with a standard 2-inch split spoon sampler (ASTM D1586) from each boring. Sampling for borings B6 to B8, located within the former UST excavation, will begin at the termination of the pea gravel backfill material. Since borings B9 and B15 will be used to assess potential migration of materials originating from the former UST, sampling will begin at the depth established during borings B6 to B8 as the termination of the pea gravel backfill material. Two samples per five foot interval will be collected to a depth of five feet below the absence of OVA or HNu levels in excess of background levels or visible evidence of releases.

The bare ground area adjacent to the drum storage area where the soil from the excavation of the former UST was stockpiled has not been included in the Closure Plan for the following reasons:

- At the time the soil was stockpiled, it was not known if the soil had been contaminated by the contents of the UST. A composite of the stockpiled soil was submitted for laboratory analysis. Refer to Appendix E for the detailed analytical results;
- Based on the analytical results, the stockpiled soil did not exceed any RCRA hazardous waste characteristic criteria. The soil was classified as a K086 listed hazardous waste due to the presence of trace levels of xylene and toluene (i.e. 15 to 491 parts per billion total VOCs). The detected xylene and toluene levels are less than what can be detected in typical gasoline-contaminated soils which do not qualify as hazardous wastes; and

- The stockpiled soil was containerized in roll-off boxes immediately following the determination that it could possibly be considered a K086 hazardous waste. Based on the levels of VOCs detected in the stockpiled soil, as well as the short time frame that the soil remained uncontainerized, it is not likely that the bare ground underneath the stockpiled soil would have been impacted by the presence of the soil.

2.4 Selection of Samples to be Analyzed

Depending on the results of field screening activities with an HNu or OVA, one of the following scenarios will be followed in the selection of samples to be analyzed to verify the absence or attenuation of potential contamination:

- If neither VOC presence nor visible evidence of releases are detected in any of the samples, the samples collected from depths of 6-inches to 2-feet and 3-feet to 4.5-feet (except borings B6 to B9 and B15) will be analyzed for the parameters outlined in Section 2.1. The first two samples below the depth of the backfill material will be analyzed from borings B6 to B9 and B15.

- If elevated OVA or HNu readings and/or visible evidence of releases are uniformly detected at depths below 5 feet (or 5 feet below the depth of the backfill material within the UST excavation), a representative number of samples, which will be used to characterize the entire area, will be analyzed for the parameters outlined in Section 2.1. The samples selected to represent each sampling depth will be taken from the same boring(s). At least one boring will be selected from the drum storage area, one from the UST excavation and one from the surface runoff area. Levels of compounds detected in the analyzed samples will be assumed to be representative of levels present throughout the entire corresponding storage unit or surface runoff area.

- If VOCs and/or visible evidence of releases are detected in isolated samples, samples where HNu or OVA levels exceed background readings or visible evidence of releases are detected will be analyzed for the parameters outlined in Section 2.1. Two sample intervals (i.e. five feet) below the depth where HNu or OVA levels exceed background readings or visible evidence of releases is detected will also be analyzed to verify that attenuation of subsurface contamination has occurred. In addition to samples with HNu or OVA levels exceeding background readings or visible evidence of releases, the samples outlined above which would be analyzed if neither VOC presence nor visible evidence of releases are detected would also be analyzed. These samples would be analyzed to confirm the isolated occurrence of any detected compounds.

If extensive subsurface impacts are identified, a further scope of work will be developed based upon the data collected. A further scope of work may include additional soil borings and/or the installation of groundwater monitoring wells. The location and depths of additional subsurface soil borings or groundwater monitoring wells will be based on the initial sampling results.

2.5 Sampling Methods

Subsurface soil samples will be collected using a truck-mounted drill rig equipped to drive a standard 2-inch split spoon sampler. The boring hole cuttings and split spoon samples will be screened for VOCs using an OVA or HNu. Samples will be collected at depths outlined in Section 2.2. The samples will be transferred from the split spoon sampler to the sample jar using a stainless steel spoon or spatula.

To minimize volatilization, VOC samples will be collected directly from the split spoon sampler and placed into a 4-ounce glass wide mouth soil jar. The VOC jar will be filled as full as possible. One 8-ounce glass wide mouth soil jar will be filled to 3/4 capacity for PNA and TPH (as both kerosene and mineral spirits) analyses.

Soil samples for VOC analysis will be collected using a split spoon sampler versus soil sampling procedures outlined in Attachment 7 of the IEPA Closure Plan Instructions (Attachment 7) for the following reasons:

- The sampling methods outlined in the Closure Plan have been accepted in numerous Quality Assurance Project Plans and associated sampling plans for investigation of Comprehensive Environmental Recovery, Compensation and Liability Act (CERCLA) sites;
- It is not possible to characterize the subsurface hydrogeology or field screen the borings with an HNu or OVA using sampling procedures outlined in Attachment 7. By field screening borings with an HNu or OVA, it is often possible to avoid the additional costs which may be incurred due to the multiple phases of soil sampling often required in the absence of field screening techniques. Two borings per boring location (i.e. side by side

borings) would be required if sampling procedures outlined in Attachment 7 are used, which would increase the Closure Plan costs associated with drilling activities while not providing better quality data;

- Soil samples are not being mixed or composited using sampling methods outlined in the Closure Plan. Filling the VOC jar as much as possible serves to minimize potential volatilization. Placing the sample into a jar also creates a more homogeneous sample for analytical purposes than sampling methods outlined in Attachment 7;

- It is not possible to determine the sample recovery using sampling procedures outlined in Attachment 7. If recovery is poor, sufficient sample volume may not be available to run all of the required analyses; and

- There is no documentation which shows that VOC volatilization would be less using sampling methods outlined in Attachment 7 versus those outlined in the Closure Plan. Because of the sample handling requirements to perform the analytical tests, the potential for VOC volatilization due to sample handling should be equivalent for both sampling methods. The potential for VOC volatilization during shipping should be less using the sampling methods outlined in the Closure Plan due to the tight seal provided by the teflon lid on the soil jar and the filling of the soil jar to minimize the head space.

Sample bottles will be placed into coolers for storage and shipment and chilled to 4 degrees centigrade for preservation purposes. Ice will be sealed in ziplock plastic bags to prevent leakage. A detailed description of the sampling procedures outlined above is presented in Table 1. Any necessary monitoring well construction or additional sampling information will be supplied at the time the need for further sampling is determined.

2.6 Sample Custody

2.6.1 Field Documentation

All samples will be collected under chain-of-custody procedures. Chain-of-Custody protocol used will follow National Enforcement Investigation Center (NEIC) policies and procedures and User's Guide to the Contract Laboratory Program (CLP) Protocol including use of chain-of-custody forms, custody seals, sample tags, container labels, and field notebooks for sample documentation. The documentation in the field notebook will include

sampling time, location, tag numbers, samplers, weather conditions, and any field modifications of sampling strategy. Standard forms including chain-of-custody record forms, sample labels, and chain-of-custody seals will be maintained throughout the sampling activities.

An example copy of the chain-of-custody form to be used for Croda is shown in Figure 4. Form requirements include:

- Use of one form per shipping container (steel foam cooler).
- Carrier service does not need to sign form if custody seal remains intact during shipment.
- Use for all samples submitted for analysis.

An example of the chain-of-custody seal to be used for sample shipping for Croda is shown in Figure 5. Seal requirements include:

- Two (2) chain-of-custody seals per shipping container attached across the cooler lid to provide evidence that the samples have not been subject to tampering.
- Covering seals with clear tape prior to shipping sample containers.

A copy of the sample label to be used for Croda is shown in Figure 6. Label requirements include:

- Each sample bottle having a sample label affixed to it. Labels will specify sample date, parameters for analysis (if applicable) and preservative used (if applicable).
- Recording sample label numbers on the chain-of-custody form and sample identification record form.
- Use for on samples collected.

The documentation accompanying the samples shipped to the laboratory will be sealed in a plastic bag taped to the inside of the cooler lid. The lid of the sample cooler will be securely taped shut and sealed with a chain-of-custody label prior to shipment. The Sampling Coordinator will be responsible for collecting the samples, completing the sample documentation, and properly packaging the samples for shipment to the laboratory. Once in the laboratory's possession, sample custody will be the responsibility of the laboratory sample custodian.

2.6.2 Laboratory Chain-of-Custody

Laboratories used for analyses are required to have written and approved standard operating procedures detailing internal chain-of-custody. Laboratory chain-of-custody protocol used will follow NEIC policies and procedures for the CLP.

2.6.3 Final Evidence File

All original data generated through the laboratory will be retained by the contractor collecting the samples. Copies of laboratory data and original field data will be retained by the contractor who will maintain and provide a custodian for the final evidence file. Upon completion of the project, the contractor will maintain the evidence file to document completeness.

2.7 Equipment Decontamination

In order to prevent cross-contamination of samples, non-dedicated reusable sampling equipment will be decontaminated between the collection of each sample. Equipment will also be decontaminated prior to use and before removal from the site. The equipment decontamination procedure will be as follows:

- Trisodium phosphate and water wash,
- Potable water rinse,
- Distilled water rinse, twice.

The outside of sample bottles will be decontaminated, if necessary, by immersing the bottle up to the neck in distilled water. Solvents will not be used in the external washing of sample bottles.

Since the drum storage area is paved and no evidence of surface spillage is observable, the drill rig should not require decontamination before leaving the site. Decontamination of the augers used for drilling will be performed at a cleaning station removed from the drum storage area. The augers will be cleaned using a high pressure hot water or steam cleaning unit. Additional scrubbing may be required to remove encrusted materials. The augers will either be cleaned inside of a containment trough, or a sump area will be constructed using plastic sheeting, containment curbing and a lined catch basin (e.g. half drum sunk into the ground). Decontaminated equipment will be stored on plastic sheeting and/or platforms above the ground surface. Decontamination of the drill augers will occur prior to the start of work and when leaving the site, as well as between each borehole. Rinse water generated will be collected and analyzed for hazardous waste parameters. The rinse water will either be discharged to the sanitary sewer system or disposed of off-site at an approved disposal facility.

2.8 Site Health and Safety Plan

A site specific health and safety plan will be prepared prior to the beginning of closure activities. The plan will address hazard evaluation, site work plan tasks, necessary levels of protection, decontamination procedures, and emergency response information. All personnel involved in the closure activities will have the necessary training required to perform their assigned tasks and be given a copy of the Site Health and Safety Plan. All on-site workers must meet all applicable training, medical surveillance requirements etc. as specified in 29 CFR 1910 for hazardous site operations.

SECTION 3
ANALYTICAL METHODS AND QA/QC

3.1 Analytical Methods

RCRA VOCs will be analyzed according to SW-846 method 8240 by GC/MS. Non-target VOCs, if present, will be identified through a library search. PNAs will be analyzed according to SW-846 method 8310 by high performance liquid chromatography (HPLC) fluorescence detection. TPH (as mineral spirits and kerosene) will be analyzed according to ASTM method D3328 by GC FID. TPH and PNA samples will be prepared according to SW-846 method 3550.

3.2 QA/QC Procedures

The QA objectives of laboratory analyses with respect to accuracy, precision, and sensitivity are to achieve acceptable data based on specified performance criteria. It is anticipated that at least 95% of the analyses will provide results meeting acceptance criteria. The general QC objective for such measurement data is to obtain reproducible and comparable measurements to a specified degree through the documented use of standardized procedures. Specific provisions for laboratory QA/QC are given below. For quality control purposes, one field duplicate per ten drum storage area soil samples will be collected and analyzed for the parameters outlined in Section 2.1. A field blank, matrix spike and matrix spike duplicate will also be prepared and analyzed for the parameters outlined in Section 2.1. Refer to the Quality Assurance Project Plan (QAPP) for a more detailed presentation of QA/QC procedures, analytical detection limits etc.

3.2.1 Calibration Procedures

Samples analyzed for RCRA VOCs and PNAs will follow calibration and continuing calibration procedures outlined in SW-846 methods. Samples analyzed for TPH will follow calibration and continuing calibration procedures according to the laboratories standard operating procedure (SOP) for petroleum hydrocarbons.

3.2.2 Quality Control Checks

Internal quality control checks for VOC and PNA analyses will follow specifications outlined in SW-846 methods. Internal quality control checks for petroleum hydrocarbons will follow specifications outlined in Warzyn's SOP.

3.2.3 Precision, Accuracy and Completeness

Procedures to address precision, accuracy and completeness for VOCs and PNAs are outlined in SW-846 methods. Procedures for precision, accuracy and completeness for TPH are outlined in the laboratories SOP.

3.2.4 Corrective Action

If quality control audits result in the detection of unacceptable conditions or data, corrective action taken may include the following:

- re-analysis of the sample if holding time allowances permit;
- re-sampling and re-analysis;
- evaluating and amending sampling and analytical procedures; or
- accepting data, acknowledging the level of uncertainty.

3.2.5 Data Reduction, Validation and Reporting

Data reduction, validation and reporting is the responsibility of Warzyn Engineering Inc. Data reporting from the laboratory will be consistent with the CLP deliverable format. Laboratory results will be checked by Warzyn Engineering Inc. to determine the fraction of analyses that meet specified QC criteria.

SECTION 4
WASTE DISPOSAL PLAN

4.1 Remaining Drums

All of the hazardous waste drums present on-site during the March 28, 1989 IEPA inspection have already been shipped to Avganic Industries, Inc. in Cottage Grove, Wisconsin for off-site disposal (Refer to Appendix C for copy of manifests). The central hazardous waste drum storage area has subsequently been relocated indoors to the mixing room adjacent to the main manufacturing area. It is intended to make this area the central hazardous waste drum storage area on a permanent basis. Hazardous waste storage will not occur in the present drum storage area during the time period required to complete the closure process. Any remaining pallets, or other debris remaining in the drum storage area, at the time of closure will either be reused on-site or disposed of in the plant's general refuse. Any ink residue on the pallets or debris will be scraped off and disposed of along with the D001 flammable hazardous waste ink sludges generated by manufacturing operations.

4.2 Soil Cleanup Levels

Health-based cleanup levels were developed for the primary VOCs used in Croda's operations, as well as for carcinogenic PNAs. Based on Warzyn's experience, PNAs would be expected to be present in the spent kerosene waste stream. Since very little toxicity data exists for the other PNAs, the selected cleanup criteria for all of the carcinogenic PNAs is based on benzo(a)pyrene (B(a)P). Because of the relatively low toxicity of the primary VOCs (refer to Table 3) used at the site (xylene, toluene, MIBK), the selected cleanup criteria for total VOCs is based on the calculated level for methylene chloride, an identified potential carcinogen. The use of methylene chloride as the basis for total VOCs provides an extremely conservative approach in the establishment of health-based cleanup criteria. Individual health-based cleanup levels were developed for the following compounds:

- xylene,
- toluene,
- MIBK,
- methylene chloride,
- B(a)P.

Of the above mentioned compounds, methylene chloride and B(a)P presently quality as potential carcinogens. Xylene, toluene and MIBK presently qualify as non-carcinogens.

4.2.1 Exposure Pathway Assessment

Although groundwater is a possible source of human exposure to VOCs at the Croda site, it is not a likely source of human exposure. A subsurface hydrogeological investigation of the Croda site has yet to be performed. Based on regional hydrogeological data, it is probable that a saturated clay layer lies below the Croda site to a depth of approximately 60 feet. Based on the regional hydrogeology, as well as the distances from the site and depths of water wells known to exist within a one mile radius of the Croda site, potential contamination originating from the hazardous waste drum storage area would not be expected to impact existing water wells. Because of its low hydraulic conductivity and storage capacity, it is not anticipated that groundwater present in the clay layer could ever be used as a drinking water source. Furthermore, there are currently no water supply wells on-site, and the areas around the Croda facility are serviced by water from Lake Michigan supplied by the City of Chicago. For the reasons stated, groundwater was not considered as a source of human exposure to VOCs originating from the Croda site. Unlike the VOCs, any PNAs present in on-site soils would not be expected to migrate to the water table because of their high affinities for clay soils and low water solubilities. Because of the above-mentioned conditions, soil ingestion is expected to present the prime route of human exposure to chemicals originating from the Croda site.

4.2.2 Soil Cleanup Level Calculations

Similar procedures were used to calculate soil cleanup levels for non-carcinogens and carcinogens in soil. In general, United States Environmental Protection Agency (EPA) risk assessment guidelines were used as a basis to calculate health based soil cleanup levels (Superfund Public Health Evaluation Manual (SPHEM), 1986). The following sections outline the procedures used to calculate the soil cleanup criteria for carcinogens and non-carcinogens.

4.2.2.1 Soil Cleanup Levels for Carcinogenic Chemicals. To determine the risk of cancer from exposure to carcinogenic chemicals in soil, the daily intake of the chemical from soil ingestion is multiplied by the chemical's EPA cancer potency factor. The result is a qualified estimate of an individual's likelihood of developing cancer as a result of exposure to the carcinogenic chemical at given concentrations and intake rates. The cancer risk due to the chemical exposure is calculated using Equation 1.

Equation 1: Cancer Risk

$$R = CPF \times DI$$

Where: R = Cancer risk level
DI = Daily intake of chemical, mg/kg/day
CPF = Cancer potency factor, $(mg/kg/day)^{-1}$

The daily intake (DI) of the chemical is dependent upon the concentration of the chemical in soil, the rate of soil ingestion and the persons body weight. The daily intake of a chemical is calculated using Equation 2.

The cancer potency factor relates the level of chemical exposure to the probability of the occurrence of cancer in humans. The cancer potency factor was developed by the EPA after reviewing pertinent epidemiology studies, long term cancer bioassays and utilizing specific extrapolation procedures to predict cancer rates at low doses of chemical exposure. The cancer potency factor was derived to predict cancer rates based on the assumption that a person is exposed to the chemical for their entire life

(i.e., 70 years). It is unlikely that a person would be exposed to the Croda site for 70 years; therefore, the soil cleanup levels calculated should error on the conservative side.

Equation 2: Daily Intake-Carcinogens and Non-Carcinogens

$$DI = \frac{SCL\ (IR)}{(M)\ (1000^a)}$$

Where: DI = Daily intake of chemical, mg/kg/day
SCL = Soil concentration (i.e., soil cleanup level), mg/kg
IR = Soil ingestion rate, 0.1 g/day
M = Average mass of an adult human, 70 kg
a = Conversion factor, kg soil to g soil

This amount of soil intake appears to over-estimate the likely soil exposure at the Croda facility. The area of contamination is not used as an active work area, but rather as a storage area. Employees would likely be in contact with the area for only a brief period of time during the work day. The Croda facility is secured with a fence and is located in an industrial park. It was, therefore, assumed that adults would be the primary population exposed at the site. The weight for a typical adult specified by the EPA is assumed to be 70 kilograms (kg) (SEAM, 1987). An adult soil ingestion rate of 100 milligrams per day (mg/day) was used as the level of soil exposure (Superfund Exposure Assessment Manual (SEAM), 1987 and January 27, 1989 EPA interim final guidance). The soil concentration of the chemical will be used as the health based soil cleanup concentration.

To estimate the soil cleanup level, an acceptable risk of cancer was established and Equations 1 and 2 were combined to solve for the acceptable concentration of the chemical in soil (see Equation 3).

Equation 3: Carcinogenic Soil Cleanup Level

$$SCL = \frac{R}{CPF} \times \frac{M}{IR} 1000^{a}$$

Where: SCL = Soil cleanup level, mg/kg
R = Risk level (e.g., 10^{-6})
CPF = EPA carcinogenic potency factor for the compound, $(mg/kg/day)^{-1}$
M = Average mass of an adult human, 70 kg
IR = Soil ingestion rate, 0.1 g/day
a = Conversion factor, g soil to kg soil

The proposed soil cleanup levels for B(a)P and methylene chloride, as well as their associated cancer potency factors, are presented in Table 2. Since the soil ingestion rate, as well as the application of the B(a)P and methylene chloride cleanup levels to the sum of all carcinogenic PNAs and VOCs, respectively, are believed to be extremely conservative estimates, a cancer risk factor of 10^{-5} was used to calculate the corresponding carcinogenic cleanup levels.

4.2.2.2 Soil Cleanup Level Calculations for Non-Carcinogenic Chemicals. To estimate if the soil concentration of a non-carcinogen chemical poses a hazard to human health, the daily intake is determined and compared to the EPA reference dose (Rfd) for the chemical. The exposure assumptions that were used to calculate the soil cleanup levels for carcinogens were applied to the non-carcinogens. The reference dose is defined as the daily dose of a chemical which should not result in any signs of deleterious human health effects. There are daily doses determined for subchronic (AIS) and chronic (AIC) exposure periods. To determine the soil cleanup levels for the Croda facility, chronic reference doses were used as a conservative approach.

To determine if a chemical may pose a hazard, hazard indices (HI) were determined for each chemical. A HI is defined as the ratio of the daily intake over the AIC (see Equation 4).

Equation 4: Hazard Indices for Non-carcinogens

$$HI = \frac{DI}{AIC}$$

Where: HI = Hazard Index
DI = Daily chemical intake, mg/kg/day
AIC = Acceptable daily intake due to chronic exposure, mg/kg/day

If the daily intake is equal to the acceptable daily intake (Rfd), the HI is equal to 1. If the HI is equal to or less than 1, the chemical is not anticipated to pose a hazard to human health. To calculate the soil cleanup level, the HI is set equal to 1 (i.e., DI = Rfd). Equations 2 and 4 are combined and rearranged to solve for the soil chemical concentration which will result in an HI of 1 (see Equation 5).

Equation 5: Non-Carcinogenic Soil Cleanup Level

$$SCL = RFD \times \frac{M}{IR} \times 1000^{a}$$

Where: SCL = Soil cleanup level, mg/kg
RFD = EPA reference dose (AIC), mg/kg/day
M = Average mass of an adult human, 70 kg
IR = Soil ingestion rate, 0.1 g/day
a = Conversion factor, g soil to kg soil

The health-based soil standard for the specified non-carcinogenic compounds, as well as their respective reference doses, are presented in Table 3. These values are presented for reference purposes only since they are not incorporated in the final cleanup criteria.

4.2.3 Application of Soil Cleanup Levels

As mentioned previously, PNAs may be present at the Croda facility. Little pertinent toxicological data exists on PNAs. Of the PNAs, the most complete toxicology data base exists for B(a)P. This is the only PNA for which the EPA has calculated a cancer potency factor. No reference doses have been determined for the non-carcinogenic PNAs.

B(a)P is considered the most potent chemical carcinogen in its class. Because of this, the soil cleanup level that is calculated for B(a)P is generally applied to the other carcinogenic PNAs as a conservative soil cleanup criteria. This assumption will be made for the Croda facility. The sum of the soil concentrations of all carcinogenic PNAs found at the site will be calculated and compared to the B(a)P cleanup level (i.e., 0.6 milligrams per kilogram), which is based on an accepted cancer risk level of 10^{-5}. The following PNAs are considered carcinogenic:

- benzo(a)anthracene
- benzo(a)pyrene
- benzo(b)fluoranthene
- chrysene
- dibenzo(a,h)anthracene

It will be assumed that the reduction of carcinogenic PNAs below the established cleanup criteria of 0.6 milligrams per kilogram (mg/kg) will also reduce the non-carcinogenic PNAs to acceptable health-based levels. The following PNAs quality as non-carcinogenic:

- acenaphthene
- acenaphtylene
- anthracene
- benzo(g,h,i)perylene
- pyrene
- benzo(k)fluoranthene
- fluoranthene
- fluorene
- indeno(1,2,3-c,d)pyrene
- phenanthrene

Because of the relatively low toxicity (refer to Table 3) of the primary VOCs used at the site (xylene, toluene, MIBK), the selected cleanup criteria for total VOCs is based on the calculated level for methylene chloride. The sum of the soil concentrations of all SW-846 Method 8240 VOCs found at the site will be calculated and compared to the methylene chloride cleanup level (i.e. 900 milligrams per kilogram), which is based on an accepted cancer risk level of 10^{-5}. Comparing total VOCs levels to the health-based standard developed for methylene chloride represents a very conservative approach to the development of cleanup criteria for the primary VOCs (xylene, toluene, MIBK) used at the site.

4.2.4 Exposures to Multiple Chemicals

Since the total concentrations of both the VOCs and carcinogenic PNAs will already be summed up and compared to a conservative health-based standard, the potential additive effects of multiple chemicals within a given group of compounds have already been accounted for in the analysis. The potential does exist, though, for more than one carcinogen to be detected in the analyses (e.g. B(a)P and methylene chloride). Equations 6 and 7 would be utilized, if necessary, to evaluate the additive effects of multiple carcinogenic and non-carcinogenic compounds:

Equation 6: Combined Carcinogenic Effects

$$\text{Risk} = (CPF_1 \times DI_1) + (CPF_2 \times DI_2) \ldots + (CPF_n \times DI_n) \text{ for n compounds}$$

Where: CPF and DI have been previously defined in Equations 1 and 2, respectively.

Equation 7: Combined Hazard Indices

$$HI_n = \frac{C_1}{SCL_1} + \frac{C_2}{SCL_2} + \frac{C_n}{SCL_n} \text{ for n compounds}$$

Where: C = Concentration of chemical in soil, mg/kg
SCL = Corresponding soil cleanup level for chemical, mg/kg

In the case of the combined carcinogenic effects, the sum of the products will be compared against a carcinogenic risk factor of 10^{-5}. If the sum is less than 10^{-5}, the soil concentrations of the chemicals will be assumed to be safe. If the sum exceeds 10^{-5}, the applicable cleanup levels will be considered exceeded. A similar comparison is used for the combined hazard index for non-carcinogenic compounds. If the sum of all the ratios is less than one, the soil concentrations of the chemicals will be assumed to be safe. If the sum of the ratios is greater than one, the applicable cleanup levels will be considered exceeded. Both approaches assume the adverse effects of multiple chemicals are additive, intakes are small and no synergistic effects occur between compounds.

4.2.5 Statement of Qualification

The soil cleanup criteria were developed only for the classes of chemicals discussed in this section. If other chemicals potentially of concern are detected at the Croda site, a similar approach would be used to develop additional cleanup criteria. If the subsurface hydrogeology differs significantly from the regional hydrogeology, the soil cleanup criteria would have to be modified to reflect potential groundwater exposure to the identified chemicals. If materials originating from the drum storage area are found to be impacting the storm sewer system discharging to the North Branch Chicago River, applicable water quality criteria might have to be incorporated into the risk assessment.

4.3 Soil Remediation Plan

Soil within the drum storage area will be excavated to a depth of 2 feet using a backhoe if contamination in excess of the cleanup criteria (i.e. 0.6 mg/kg total carcinogenic PNAs or 900 mg/kg total VOCs) is detected in the 6-inch to 2-foot interval samples throughout the drum storage area. Excavated soil will be loaded directly into dump trucks and hauled away for final disposal. Staging will be done on plastic sheeting in order to catch any contaminated soil which is spilled during the loading process. If detected contamination in excess of the cleanup criteria is believed to be in isolated areas, excavation activities will be limited to the isolated grid interval(s) of contamination. If contamination in excess of the cleanup criteria is detected in the soil samples from areas impacted by surface runoff from the storage area (i.e. boring B8 to B13), the excavation activities will include the bare ground area along the entire eastern boundary of the drum storage area up to a distance of 5 feet away from the edge of the asphalt surface.

In the absence of soil contamination which would require excavation of the drum storage area, any residue adhering to the asphalt surface will be removed by scraping and/or brushing. The asphalt surface will then be steam

cleaned and triple rinsed. All wash and rinse water will be collected, analyzed for RCRA hazardous waste characteristics and disposed of in a proper manner.

If a K086 listed hazardous waste constituent is present, excavated soil will be disposed of at a secure hazardous waste landfill or incinerated. If the waste is classified as non-hazardous (or Illinois Special Waste), the excavated soil will be disposed of at an approved sanitary landfill. An appropriate disposal site will be selected once the analytical results are reviewed for RCRA hazardous waste classification, and it is determined if constituents affected by the RCRA landfill ban are present. Contaminated soil which qualifies as a K086 hazardous waste is presently covered by the "soft hammer" provisions of the RCRA landfill ban. In order to verify the effectiveness of the remediation, four discrete soil samples will be collected from the base of the excavated area and analyzed for the contaminants identified during the initial sampling activities.

If the levels of compounds of concern in excess of cleanup criteria extend below the 6-inch to 2-foot interval, an additional scope of work will be developed. The additional scope of work may include excavation of contaminated soil to lower depths, a second phase of soil borings and sampling to define the extent of contamination, the installation of groundwater monitoring wells (depending on the depth to the water table) or alternative methods of remediation (e.g. soil vapor extraction, bioremediation). The development of an additional scope of work also applies to potential contamination in excess of cleanup criteria originating from the former UST (i.e. samples collected from borings B6 and B7).

Even though the clay soil environment typical of the regional geology would be expected to attenuate any potential contamination originating from the drum storage area, it is recognized that off-site migration of VOCs via the water table could result in vapor migration into neighboring storm sewer pipes, utilities, basements etc. If the levels of detected contaminants (or

remaining contaminants following the excavation of two feet of surface soil) are below the applicable soil cleanup criteria, and migration to the depth of the water table has yet to occur, a further scope of work would be developed if the potential for migration to the water table exists (based on the levels of detected contaminants, geologic conditions and depth to the water table). An additional scope of work would be expected to include the installation of groundwater monitoring wells, both within the drum storage area and at selected locations near the perimeter of the site. The wells would be sampled on a periodic basis, for a specified period of time, to evaluate the potential for off-site migration of any remaining contaminants.

A similar scope of work would also apply if remaining contaminant levels are below soil cleanup criteria, but migration of those contaminants has already impacted the water table. In this case, the locations of the monitoring wells would be designed to monitor both the rate and attenuation of potential off-site migration. In either case, an alternative remediation method (e.g. pump and treat impacted groundwater, excavate the source of contamination) would be specified if the potential exists for off-site migration of liquid or vapor phase materials originating from the hazardous waste drum storage area.

SECTION 5
STATUS OF AREA AFTER CLOSURE

Closure of the drum storage and UST areas will be complete after the Closure Plan is executed. The facility would then qualify as a large quantity generator, and will generate and store more than 1000 kilograms per month of hazardous waste for less than 90 days. There is presently no intention of utilizing the drum storage area for hazardous waste storage in the future. Future hazardous waste storage will be moved indoors. If the area is considered clean after analysis of the soil samples, it will be left as is. If contaminated soil is excavated, it will be replaced with clean fill material. The area will be paved with asphalt or concrete prior to re-utilizing it for equipment storage.

SECTION 6
CLOSURE COST ESTIMATE

A breakdown of the closure cost estimate by activity is presented below. The cost estimate includes the excavation and off-site landfilling of 360 cubic yards of soil (i.e. 125-feet by 30-feet by 2-foot depth assuming a 30% bulking factor) as a K086 hazardous waste. Off-site soil disposal would only be required if contamination is identified during soil sampling activities. It was assumed that only the first 5 feet of each boring would be analyzed. Analytical costs for running all of the parameters mentioned in Sections 2.1 are included for 20 soil samples from the drum storage area, 10 soil samples from the UST area, three field duplicates, one field blank, one matrix spike, one matrix spike duplicate, four excavation clean-up verification samples and RCRA hazardous waste characterizations for the rinse water and excavated soil. Oversight costs by an independent professional engineer were included for the soil sampling and soil excavation activities.

Closure Cost Estimate

I. Soil Sampling (assumes two days)	
-Sampling (includes safety protection)	$ 12,000
-Analytical	$ 42,000
II. Soil Removal, Transportation and Disposal	
-Excavation and Disposal (includes safety protection and backfill), if necessary	$ 72,000
-Oversight	$ 5,000
III. Closure Report/Certification	$ 11,000
TOTAL CLOSURE COSTS	$142,000

SECTION 7
CERTIFICATION OF CLOSURE

The Closure Plan will be executed by an independent environmental engineering firm in conjunction with Croda, and certified by a responsible corporate officer of Croda and an independent professional engineer registered in the State of Illinois (Refer to Appendix D for certification documents). Certification will be completed within 60 days upon completion of closure. The independent professional engineer will be present during soil sampling and any necessary soil removal activities. Croda will notify the designated representative of the IEPA prior to the performance of any critical activities. Documentation supporting the professional engineer's certification will be furnished upon request until Croda has been released from its financial assurance requirements.

Upon completion of closure, a Closure Documentation Report, along with closure certification will be submitted to the IEPA documenting closure activities. This report will include:

- the volume of waste and soil removed,
- a description of the method of waste handling and transportation,
- manifest numbers for off-site disposal,
- a description of the sampling and analysis methods used,
- a chronological summary of closure activities and costs,
- photo documentation of closure,
- all analytical results.

SECTION 8
REFERENCES

Fetter, C.W., Applied Hydrogeology, Second Edition, Merrill Publishing Co., 1988.

Freeze, R.A. and J.A. Cherry, Groundwater, Prentice-Hall Inc., 1979.

Levin, H.L., The Earth Through Time, W.B. Saunders Company, 1978.

Lineback, J.A., Quaternary Deposits of Illinois, 1 Plate, Illinois State Geological Survey, 1979.

U.S. EPA, 1987. Superfund Exposure Assessment Manual, U.S. EPA, Office of Emergency and Remedial Response, Washington, D.C.

U.S. EPA, 1986. Superfund Public Health Evaluation Manual, U.S. EPA/540/1-86/060 (OSWER Directive 9285. 4-1), U.S. EPA Office of Emergency and Remedial Response, Washington, D.C.

United States Geological Survey, "Park Ridge, Illinois Quadrangle", 7.5 Minute Series (Topographic), 1 Plate, United States Geological Survey, 1963, Photorevised 1972 and 1980.

Willman, H.B. and others, Geologic Map of Illinois, 1 Plate, Illinois State Geological Survey, 1967.

Willman H.B. and others, Handbook of Illinois Stratigraphy, Bulletin 95, Illinois State Geological Survey, 1975.

William H.B., Summary of the Geology of the Chicago Area, Circular 460, Illinois State Geological Survey, 1971.

Table 1

Sample Quantities, Bottles Preservation and Packaging
Requirements for Soil Samples
Croda Inks Corporation

ANALYSIS	BOTTLES AND JARS	PRESERVATION	HOLDING TIME	VOLUME OF SAMPLE	SHIPPING	PACKAGING
SOIL CLP Protocol						
Low Concentration (Organics)						
PNAs and Total Petroleum Hydrocarbons	One 8-oz. wide mouth glass jar. with teflon cap	Iced to 4°C	7 days extraction	Fill 3/4 full	Federal Express Priority One	No. 1 foam liner or vermiculite
Volatiles	One 4-oz. wide mouth glass jar. with teflon cap	Iced to 4°C	14 days	Fill completely no head space	Federal Express Priority One	No. 1 foam liner or vermiculite

[WP1]
40045R01MSR/gmg/JAH

Table 2

Soil Cleanup Levels For Carcinogenic Compounds
Based On An Adult Population

Compound	Target Cleanup Level (mg/kg)[1]	Carcinogenic Potency Factor $(mg/kg/day)^{-1}$
benzo(a)pyrene[2]	0.6	11.5
methylene chloride[3]	900	.0075

Notes:

1. Based on cancer risk factor of 10^{-5} and adult soil ingestion as the only potential human exposure pathway.
2. Target cleanup level applies to sum of all carcinogenic PNA concentrations.
3. Target cleanup level applies to sum of all VOC concentrations.

WP1
40045R01MSR/gmg/JAH

Table 3

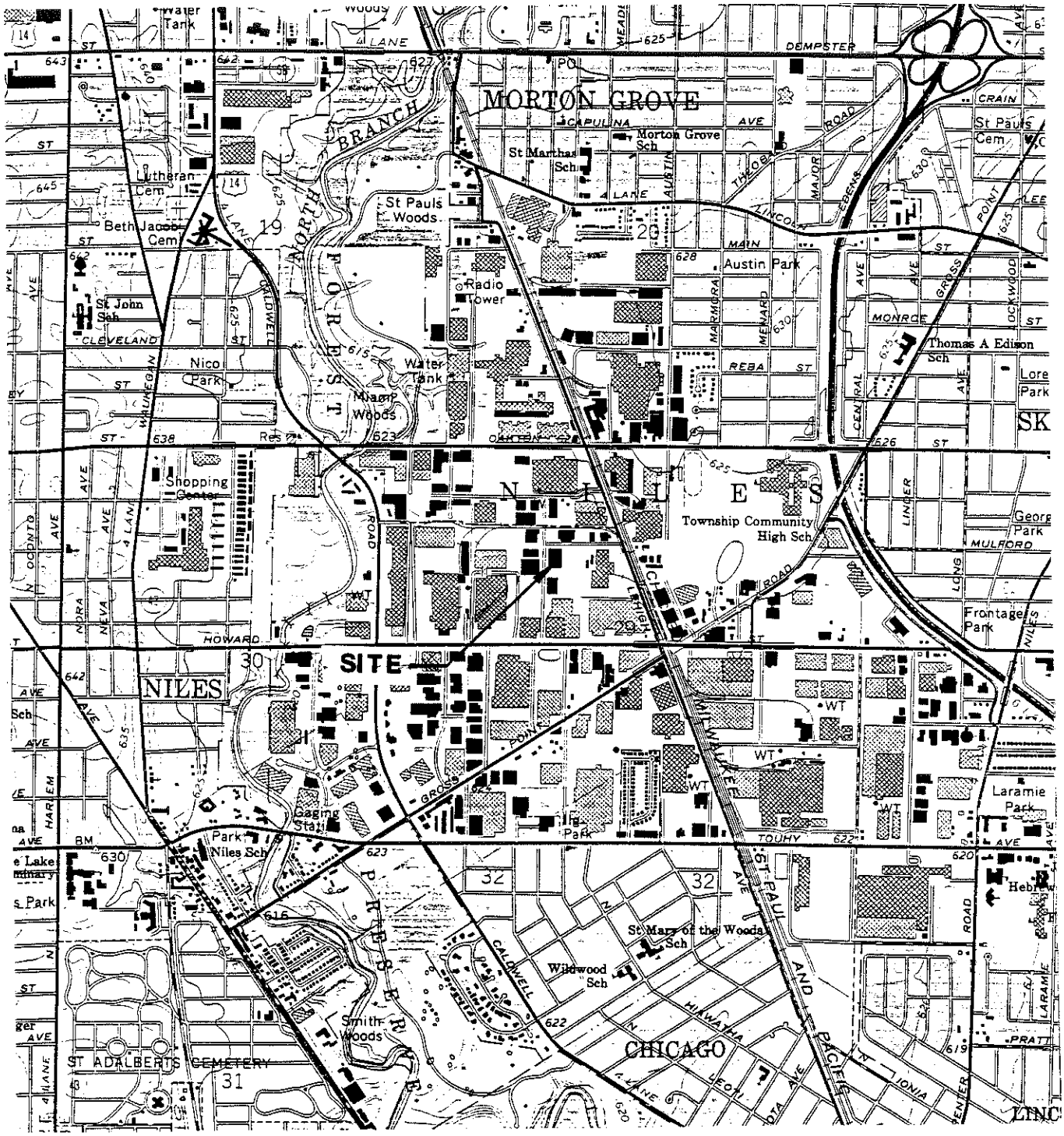
Soil Cleanup Levels For Non-Carcinogenic Compounds
Based On An Adult Population

Compound	Target Cleanup Level (mg/kg)[1]	Reference Dose (mg/kg/day)
methyl isobutyl ketone	35,000	.05
toluene	210,000	0.3
xylene	1,400,000	2.0

Notes:

1. Based on adult soil ingestion as the only potential human exposure pathway.

WP1
40045R01MSR/gmg/JAH



NOTES:

BASE MAP DEVELOPED FROM PARK RIDGE, ILLINOIS 7.5 MINUTE USGS TOPOGRAPHIC QUADRANGLE MAP DATED 1963, PHOTOREVISED 1972 & 1980.

north

SCALE: 1" = 2000'

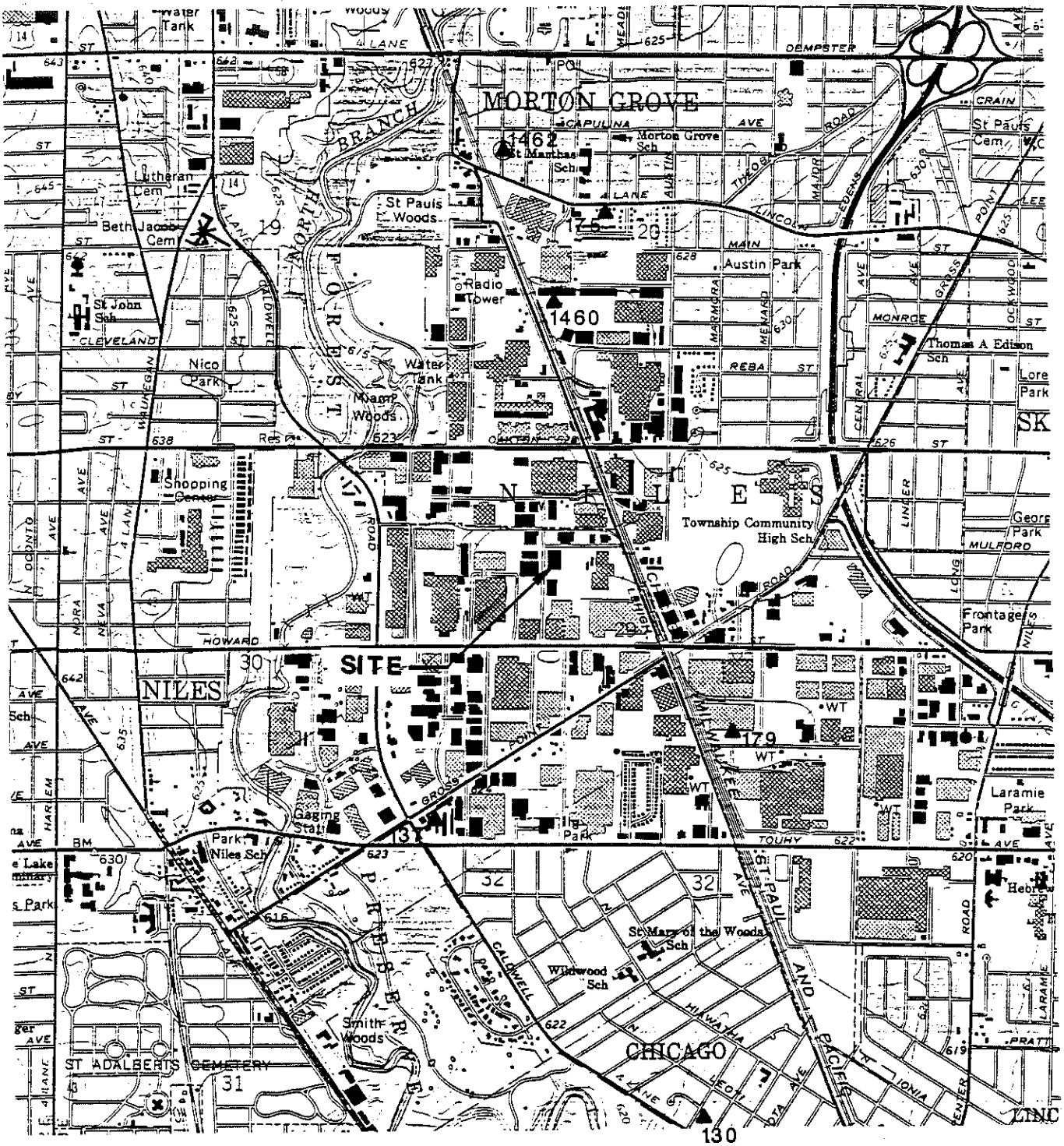
FIGURE 1

DWN. D.L.L.	APP'D. MBR	DATE 10/5/89	40045.02-A1

WARZYN ENGINEERING INC

USGS MAP

CRODA INKS CORPORATION
NILES, ILLINOIS



NOTES:

BASE MAP DEVELOPED FROM PARK RIDGE, ILLINOIS 7.5 MINUTE USGS TOPOGRAPHIC QUADRANGLE MAP DATED 1963, PHOTOREVISED 1972 & 1980.

LEGEND

- ▲ PRIVATE WELL LOCATION & TOTAL DEPTH
- ◭ MUNICIPAL WELL LOCATION & TOTAL DEPTH

north

SCALE: 1" = 2000'

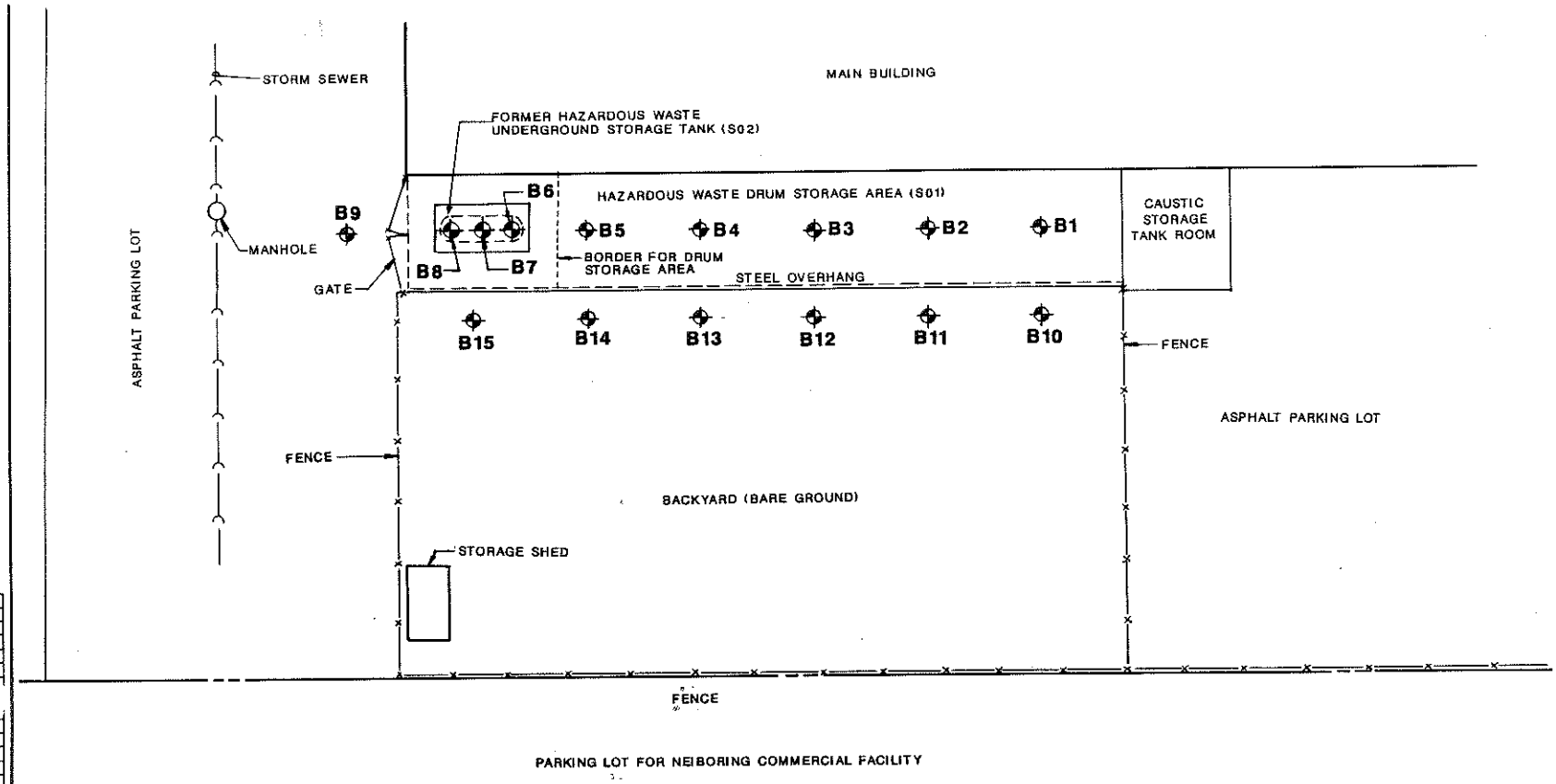
FIGURE 2

DWN. D.L.L.	APP'D MSR	DATE 10/5/89	40045.02-A2

WARZYN ENGINEERING INC

PRIVATE WELL LOCATION MAP

CRODA INKS CORPORATION
NILES, ILLINOIS



LEGEND

B1 ⊕ PROPOSED BORING LOCATION & NUMBER

NOTES:

BASE MAP DEVELOPOED FROM SITE PLAN PROVIDED BY CRODA INKS CORP., DATED MARCH 1, 1980.

ALL BORING LOCATIONS ARE APPROXIMATE.

north

SCALE: 1" = 20'

FIGURE 3

PROPOSED BORING LOCATION MAP

CRODA INKS CORPORATION

NILES, ILLINOIS

Sheet Number 0F

Project Number 40045.02-B1

WARZYN

Enrgr Inc
One Science Court
University Research Park
P.O. Box 5385
Madison, Wisconsin 53705
(608) 273-0440

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	NO. OF CONTAINERS								REMARKS
SAMPLERS: *(Signature)*										
LAB NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION					

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*		Date / Time	

Remarks

FIGURE 4 CHAIN OF CUSTODY FORM

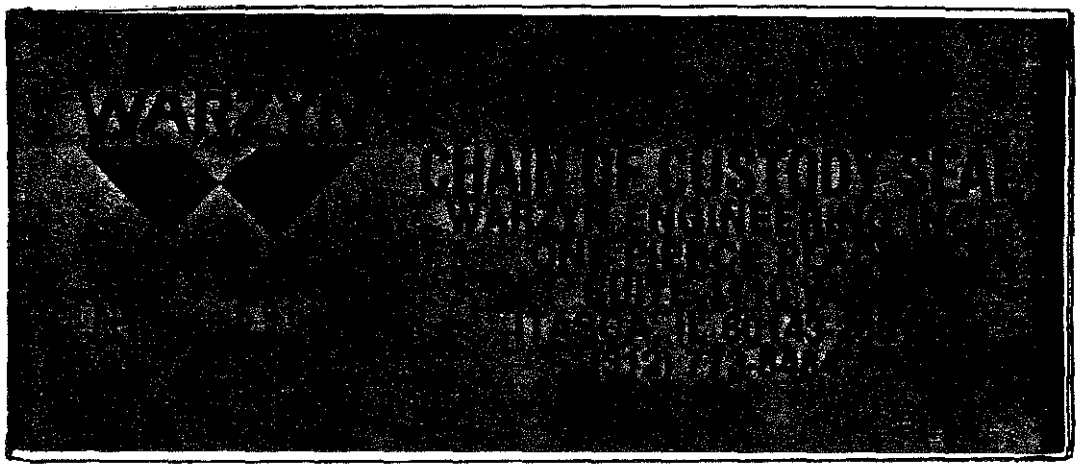


FIGURE 5 CHAIN OF CUSTODY SEAL

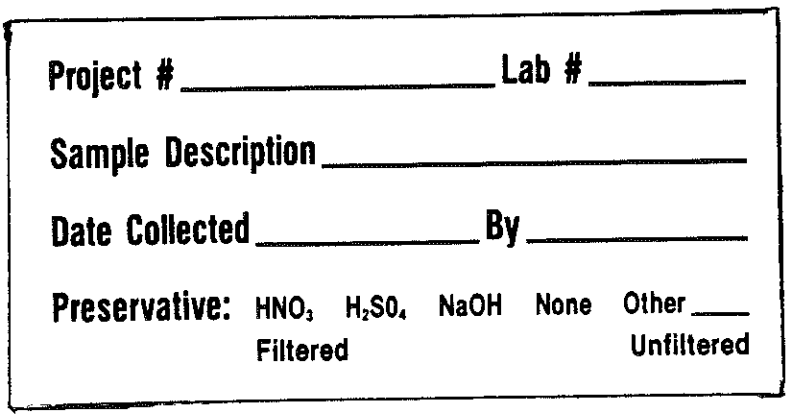


FIGURE 6 SAMPLE LABEL

APPENDIX A

HAZARDOUS WASTE ANALYSES

CleanHarbors

LABORATORY WASTE DISPOSAL DECISION FORM

R 3287/

LABORATORY Profile Sheet Number

A waste analysis report (✓ has) (____ has not) been prepared. If not, none is required according to company policy because

____ waste is a virgin product.
____ waste has been previously received.
____ waste is not sampleable.
____ non hazardous waste.

I have reviewed the profile sheet and analytical report (if required) and find the waste as represented by the profile sheet

✓ may be received at the facility.
____ may not be received at the facility.

Reason: _____

CONDITIONS OF ACCEPTANCE

Chemical Conditions (pH, flash point, etc.): _____

Physical Conditions: _____

Packaging Conditions (weight, container type, etc.): _____

CLHB Code CCR 1C CLT Disposal Outlet CWM Chicago

Alt. Rec. Code(s) _____ Alt. Disp. Outlet(s) _____

Technical Manager Signature: Margaret C Mahoney 3-6-89 Date

SALES

MAR 13 1989

Reviewed by _____

312 967 2232 CRODA INKS NILES 5/02/89 08:46 005

8
01 312 868 5408
CHEM-CLEAR/CHGO

TEL No.1 312 868 5408 May 31,89 13:45 P.04

CleanHarbors

CUSTOMER SERVICE WASTE DISPOSAL DECISION FORM

CONTRACT: CR0230, GENERATOR: Croda Ink

PROFILE #: K32811 DESCRIPTION: waste cleaning soln

CAT. CODE: OCR RECEIVING CODE(S): CCI

RATE: ______ COST: ______ CUSTOMER CTL#: ______

— — PRICING COMMENTS — —

Kiln pac = $200 ea

— — TREATMENT STATUS — —

~~Heat~~ Incineration

PACKAGING REQUIREMENTS Kiln packed 200 lb. wt limit

DOT NAME: Hazardous Waste Liquid N.OS

HAZARD CLASS: ORM-E

UN/NA # NA9189 EPA Waste # K086 LANDFILLABLE (Y/N): N

LOG DATE: ______ APPROVED (Y/N): Y APPROVAL DATE: ______

LOT NO.: 832 CUSTOMER-CODE: CHE113

COMMENTS: NEED generators signature

SAVE THIS RECORD? (Y/N): ______

MAR 14 1989

CHI 132 WHITE — CUSTOMER SERVICE YELLOW — FILE COPY

Clean Harbors WASTE MATERIAL PROFILE SHEET

8132 R 32811
Profile Number

GENERATOR INFORMATION

GENERATOR: CRODA INK (As we appear on manifest)
BILL TO: CHICAGO CHEM-CLEAR FIELD SERVICE (Customer)
FACILITY ADDRESS: 7777 HARLEM... NILES, ILL 60648
CUSTOMER CONTACT: TOM SIMPSON
CUSTOMER PHONE: 312-868-0440
GENERATOR U.S.EPA ID #: ILD002731124
TECHNICAL CONTACT: DEAN ROBING   TITLE: [illegible]   PHONE: 312-967-7578
GENERATORS COMMON NAME FOR WASTE: WASTE CLEANING SOLUTION / [illegible]
PROCESS GENERATING WASTE: INK MANUFACTURE

B. PHYSICAL CHARACTERISTICS OF WASTE

BTU/LB.	PH RANGE	% ORGANIC HALOGEN	ODOR

FLASH POINT (°F): ☐ < 100 ☐ 100-140 ☐ 141-200 ☐ > 200 ☐ NO FLASH

PHYSICAL STATE @ 70°F (CHECK SEVERAL BOXES IF APPLICABLE)
☐ THICK VISCOUS LIQUID ☐ SOLID WITHOUT FREE LIQUIDS
☐ LIQUID WITH NO SETTLED SOLIDS ☐ POWDER
☒ LIQUID/SOLID MIXTURE
% LIQUID 5 % SOLID 95

C. COMPOSITION (INCLUDE INERT COMPONENTS, DEBRIS, ETC.)

SOLIDS - [illegible] %
[illegible] %
[illegible] %
%
[illegible] up to 90 %

RANGES ARE PERMISSIBLE

H. METALS ☐ TOTAL (PPM) ☐ EPA EXTRACTION PROCEDURE (mg/l) UNK

ARSENIC (As)		SELENIUM (Se)	
BARIUM (Ba)		SILVER (Ag)	
CADMIUM (Cd)		COPPER (Cu)	
CHROMIUM (Cr)		NICKEL (Ni)	
CHROMIUM HEX (Cr+6)		ZINC (Zn)	
LEAD (Pb)		TIN (Sn)	
MERCURY (Hg)		OTHER	

I. OTHER COMPONENTS — TOTAL (PPM) UNK
CYANIDES ___ PCB'S ___
SULFIDES ___ F001-F005 SOLVENTS ___
PESTICIDES ☐ YES ☐ NO SPECIFY ___
WATER REACTIVE ☐ YES ☐ NO DIOXINS ☐ YES ☐ NO

D. DEPT. OF TRANSPORTATION SHIPPING INFORMATION
D.O.T. HAZARDOUS MATERIAL ☐ YES ☐ NO
D.O.T. SHIPPING NAME ___
D.O.T. HAZARD CLASS K086
UN/NA # ___ REPORTABLE QUANTITY VALUE ___

J. SAMPLE STATUS
☒ REPRESENTATIVE SAMPLE HAS BEEN SUPPLIED
CLEAN HARBORS HAS WAIVED THE SAMPLE REQUIREMENT FOR THE FOLLOWING REASON
☐ WASTE IS AN UNUSED (VIRGIN) PRODUCT (ATTACH MSDS)
☐ WASTE HAS BEEN PREVIOUSLY RECEIVED BY CLEAN HARBORS
☐ WASTE CAN NOT BE SAMPLED
☐ WASTE IS NON HAZARDOUS
☐ WASTE WAS GENERATED FROM A SPILL

E. SHIPMENT METHOD
☐ BULK LIQUID ☐ BULK SOLID ☐ DRUM (SIZE) ___
☐ OTHER (SPECIFY) ___

F. ANTICIPATED VOLUME
12 (QUANTITY) ☐ GALS ☒ DRUMS ☐ CUBIC YDS.
PER ☐ ONE TIME ☐ QUARTER ☐ YEAR

K. OTHER COMMENTS (FOR CUSTOMER'S USE)
NO SIGNATURE AVAILABLE UNTIL BID ACCEPTED

G. WASTE DISPOSAL STATUS
U.S. EPA HAZARDOUS WASTE ☐ YES ☐ NO
U.S. EPA HAZARDOUS WASTE NUMBER(S) ___
STATE HAZARDOUS WASTE ☐ YES ☐ NO
STATE HAZARDOUS WASTE NUMBER(S) ___
IS THIS WASTE BANNED FROM LAND DISPOSAL UNDER FEDERAL REGULATIONS?
☐ YES ☐ NO
SPECIFIC GENERATOR REQUESTS FOR DISPOSAL: PRICE QUOTE TO TOM SIMPSON - CHICAGO FIELD SERVICE 312-868-0440

L. FOR CLEAN HARBORS USE

GENERATOR'S CERTIFICATION

I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I certify that the waste is not radioactive, pyrophoric, explosive or shock sensitive. I also certify that any samples submitted are representative of the actual waste.

AUTHORIZED SIGNATURE ___ NAME (PRINT) ___ DATE ___

CH 100

CleanHarbors

WASTE ANALYSIS REPORT/DECISION SHEET

LAB SAMPLE TRACKING # 8132

BOX RETAIN # 154

PROFILE SHEET # R 32810

DATE IN 3-6-89 DATE OUT LAB # 022203

ANALYSIS: Accept RESULT/NOTE ANALYST: VND

PHYSICAL DESCRIPTION: Single phase liquid

APPEARANCE: gray

% SOLID: 0

PH: 9

WATER MIX: soluble

IGNITABLE SCREEN: >140

BTU: poor

% CHLORINE: ND

REACTIVE CYANIDES SCREEN: ND

REACTIVE SULFIDES SCREEN: ND

PCB'S: —

TOC: —

SUPPLEMENTAL ANALYSIS:

RESULTS APPROVED: [signature] DATE: 3-6-89
LABORATORY MANAGER

☐ APPROVED

☐ DISAPPROVED

DISPOSAL OUTLET: ~~[illegible]~~ B TOC / Trim

CODE: H82

APPENDIX B

MATERIAL SAFETY DATA SHEETS FOR PRIMARY RAW MATERIAL AND CLEANING SOLVENTS

42-007

MATERIAL SAFETY DATA SHEET

UNOCAL 76
UNOCAL CHEMICALS DIVISION
PETROCHEMICALS GROUP

oduct Name: THINNER 23716
oduct Code No: 23716

Issue Date 10/04/88

MANUFACTURER

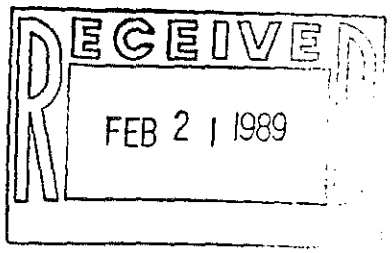
UNOCAL CHEMICALS DIVISION
UNION OIL COMPANY OF CALIFORNIA
1345 N. MEACHAM
SCHAUMBURG, ILLINOIS 60196

CONTACT FOR FURTHER INFORMATION:
MSDS COORDINATOR (312) 619-2644

Transportation Emergencies:
Call CHEMTREC
(800) 424-9300 Cont. U.S.
(202) 483-7616 (Collect)
from Alaska & Hawaii
Health Emergencies:
CALL LOS ANGELES POISON
INFORMATION CENTER (24 hrs.)
(800) 356-3129

PRODUCT IDENTIFICATION

PRODUCT NAME:	THINNER 23716
GENERIC NAME:	SOLVENT BLEND
DOT PROPER SHIPPING NAME:	PAINT RELATED MATERIAL
ID NUMBER:	NA1263
DOT HAZARD CLASSIFICATION:	FLAMMABLE LIQUID



SECTION I - HAZARDOUS INGREDIENTS/EXPOSURE LIMITS

HAZARDOUS INGREDIENTS	CAS NUMBER	TLV/PEL	UNITS	AGENCY	TYPE
LACTOL SPIRITS	64742-89-8	NONE			
CYCLOHEXANE 3	110-82-7	300	PPM	OSHA	TWA
		300	PPM	ACGIH	TWA
		375	PPM	ACGIH	STEL
HEPTANE 35	142-82-5	500	PPM	OSHA	TWA
		400	PPM	ACGIH	TWA
		500	PPM	ACGIH	STEL
TOLUENE 27	108-88-3	200	PPM	OSHA	TWA
		100	PPM	ACGIH	TWA
		150	PPM	ACGIH	STEL
		300	PPM	OSHA	CEIL
		500	PPM	OSHA	EXCUR
		200	PPM	CAL OSHA	EXCUR
METHYL CYCLOHEXANE 35 / 100%	108-87-2	500	PPM	OSHA	TWA
		400	PPM	ACGIH	TWA
		500	PPM	ACGIH	STEL
C6-C8 PARAFFINS	NONE	NONE			
C6-C8 CYCLOPARAFFINS	NONE	NONE			

042-002

Product Name: THINNER 23716
Product Code No: 23716

SECTION IA - THIS PRODUCT CONTAINS THE FOLLOWING CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA 313 AND 40 CFR 372:

LISTED INGREDIENTS	CAS NUMBER	WEIGHT PERCENT RANGE
TOLUENE	108-88-3	14.45 - 22.10
CYCLOHEXANE.	110-82-7	0.95 - 2.85

MATERIAL SAFETY DATA SHEET

EFFECTIVE DATE: AUGUST 1, 1985

42-074

Union Carbide Corporation urges the customer receiving this Material Safety Data Sheet to study it carefully to become aware of hazards, if any, of the product involved. In the interest of safety you should (1) notify your employees, agents, and contractors of the information on this sheet, (2) furnish a copy to each of your customers for the product, and (3) request your customers to inform their employees and customers as well.

I. IDENTIFICATION

PRODUCT NAME:	CELLOSOLVE® ACETATE		
CHEMICAL NAME:	2-Ethoxyethyl Acetate	CHEMICAL FAMILY:	Esters
FORMULA:	$CH_3COOC_2H_4OC_2H_5$	MOLECULAR WEIGHT:	132.16
SYNONYMS:	Ethylene Glycol Monoethyl Ether Acetate; 2-Ethoxyethanol Acetate		
DEPARTMENT OF TRANSPORTATION	Hazard Classification Shipping Name	Combustible liquid Ethylene Glycol Monoethyl Ether Acetate	
CAS # 11-15-9	CAS NAME	Ethanol, 2-ethoxy-, Acetate	

II. PHYSICAL DATA

BOILING POINT, 760 mm Hg	156.3°C (313.3°F)	FREEZING POINT	-61.7°C (-79.1°F)
SPECIFIC GRAVITY (H_2O = 1)	0.9748 at 20/20°C	VAPOR PRESSURE at 20°C	2 mm Hg
VAPOR DENSITY (air = 1)	4.6	SOLUBILITY IN WATER, % by wt.	22.9 at 20°C
PERCENT VOLATILES BY VOLUME	100	EVAPORATION RATE (Butyl Acetate = 1)	0.21
APPEARANCE AND ODOR	Water-white liquid; mild odor.		

III. INGREDIENTS

MATERIAL	%	TLV	HAZARD
2-Ethoxyethyl Acetate	100	See Section V	Irritant; toxic; combustible

IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	126°F, Tag closed cup, ASTM D 56; 134°F, Tag open cup, ASTM D 1310			
FLAMMABLE LIMITS IN AIR, % by volume	LOWER	1.7	UPPER	6.7
EXTINGUISHING MEDIA	Use water spray, carbon dioxide, dry chemical, alcohol-type, or universal-type foams applied by manufacturers' recommended techniques.			
SPECIAL FIRE FIGHTING PROCEDURES	Use supplied breathing air and protective clothing.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None			

EMERGENCY PHONE NUMBER • 304/744-3487 • This number is available days, nights, weekends, and holidays.

Name	1,1,1-Trichloroethane	Synonyms and trade names		Methyl Chloroform α-Trichloroethane Chlorothene® VG Chlorothene® NU	
mical ly	Chlorinated Hydrocarbon				
Formula	CH_3CCl_3	M. W.	133		

Summary of hazards

Principal hazards	Breathing of high vapor concentrations may cause dizziness and incoordination; if prolonged, death due to respiratory failure.						
Flammability category (OSHA)	Flammable ☐ IA ☐ IB ☐ IC Combustible ☐ II ☐ IIIA ☒ IIIB ☐ Nonflammable and not burnable						
Photochemically reactive components	Olefinic or Cyclo-Olefinic	0 vol %	Toluene	0 vol %	Trichloroethylene	0 vol %
	Aromatic C8 and above (xEB)	0 vol %	Ethyl Benzene	0 vol %	Ketones (branched hydrocarbon struc)	0 vol %

Physical data

Boiling point at 760 mm	165 °F	74 °C	Vapor pressure at 68°F (20°C)	100	mm Hg	
Melting (freezing) point at 760 mm	-36 °F	-38 °C	Vapor density at 60-90°F (15-32°C)	4.6	(air = 1)	
Specific gravity at 39.2°F (4°C)	1.32	(H_2O = 1)	Evaporation rate	7.5	(BuAc = 1)	
Solubility in water at 68°F (20°C)	0.07	g/100 g H_2O	Volatile at 70°F (21°C)	100	vol %	
Appearance	Colorless liquid		Odor	Like ether, sweet		

Fire and explosion hazard data

Flash point ☐ closed ☐ open cup	None °F	None °C	Flammable or explosive limits	Upper	10.5	vol %
Autoignition temperature	932 °F	500 °C		Lower	8.0	vol %
Firefighting hazards	Emits highly toxic fumes of hydrogen chloride, some phosgene.					

Health hazard data

Occupational exposure standard: USOS ☒ air ☐ skin (eight-hour time weighted average)			1,900 mg/M³	350 ppm	
Lethal dosage (* = principal route of absorption)	Oral Orl LD 50 rat	10,300 mg/kg	Inhalation Ihl LC 50 rat	* 8,000 7hr ppm	
	Percutaneous LD 50 rat	mg/kg	Skin Skn LD 50 rabbit	>15,800 mg/kg	
Toxic level (human)	Breathing 2000 ppm: disturbance of equilibrium; concentrated vapors for 30 min: death due to respiratory failure.				
Skin and eye irritation	Mild.				
Relevant symptoms of exposure	Dizziness, lack of coordination.				
Effects of chronic exposure	Organic injury not expected due to stability and rapid excretion by lungs.				

NOTE: See Data Supplement for properties common to Organic Solvents.
Deviations or comments are indicated in the following space.

First aid treatment: If unconscious, do not administer adrenalin.

Materials to avoid: Water; slow hydrolysis produces corrosive acid.

Other data

Solubility of water in solvent at 20°C	0.05 g/100 g solvent	Solubility parameter	

42-071

Name	Methylene Chloride	Synonyms and trade names	Dichloromethane Methylene Dichloride
Chemical family	Chlorinated Hydrocarbon		
Formula	CH_2Cl_2	M. W. 85	

Summary of hazards

Principal hazards	High volatility readily produces anesthetic concentrations: exposure may result in inebriation and dizziness; at very high concentrations, rapid unconsciousness.
Flammability category (OSHA)	Flammable ☐ IA ☐ IB ☐ IC Combustible ☐ II ☐ IIIA ☒ IIIB ☐ Nonflammable and not burnable

Photochemically reactive components						
	Olefinic or Cyclo-Olefinic	0 vol %	Toluene	0 vol %	Trichloroethylene	0 vol %
	Aromatic C8 and above (xEB)	0 vol %	Ethyl Benzene	0 vol %	Ketones (branched hydrocarbon struc)	0 vol %

Physical data

Boiling point at 760 mm	104 °F	40 °C	Vapor pressure at 68°F (20°C)	340	mm Hg
Melting (freezing) point at 760 mm	-142 °F	-97 °C	Vapor density at 60-90°F (15-32°C)	2.9	(air = 1)
Specific gravity at 39.2°F (4°C)	1.34	(H_2O = 1)	Evaporation rate	27.5	(BuAc = 1)
Solubility in water at 68°F (20°C)	1.3	g/100 g H_2O	Volatile at 70°F (21°C)	100	vol %
Appearance	Colorless liquid		Odor	Sweet unpleasant	

Fire and explosion hazard data

Flash point ☐ closed ☐ open cup	None °F	None °C	Flammable or explosive limits	Upper	None vol %
Autoignition temperature	1139 °F	616 °C		Lower	None vol %
Firefighting hazards	Emits highly toxic fumes of phosgene or hydrogen chloride. Vapors form explosive mixture with air having high oxygen content.				

Health hazard data

Occupational exposure standard: USOS ☒ air ☐ skin (eight-hour time weighted average)			1740 mg/M³	500** ppm
Lethal dosage (* = principal route of absorption)	Oral Orl LD 50 rat	mg/kg	Inhalation Ihl LC 50 rat	* ppm
	Percutaneous LD 50 rat	mg/kg	Skin Skn LD 50 rabbit	mg/kg
Toxic level (human)	Breathing 500 ppm: CNS and blood effects.			
Skin and eye irritation	Irritates skin. Eye contact is painful but not injurious unless confined.			
Relevant symptoms of exposure	Headache, dizziness, nausea, stupor, numbness and tingling of limbs, lethargy.			
Effects of chronic exposure	Dermatitis due to defatting action. No organic injury expected; rapidly excreted unchanged by the lungs.			

NOTE: See Data Supplement for properties common to Organic Solvents.
Deviations or comments are indicated in the following space.

**Ceiling concentration 1000 ppm, maximum peak 2000 ppm for 5 minutes in any 2 hours. Reports of systemic injury were probably due to presence of impurities. FDA permits restricted use as solvent for certain food additives (see CFR 121.1039) and as no-residue diluent for fruit and vegetable marking inks.
First aid treatment: If unconscious, do not administer adrenalin.

Other data

Solubility of water in solvent at 20°C	0.20 g/100 g solvent	Solubility parameter	9.9

MATERIAL SAFETY DATA SHEET

42-063

EFFECTIVE DATE: APRIL 1, 1985

APR 29 1988

Union Carbide Corporation urges the customer receiving this Material Safety Data Sheet to study it carefully to become aware of hazards, if any, of the product involved. In the interest of safety you should (1) notify your employees, agents, and contractors of the information on this sheet, (2) furnish a copy to each of your customers for the product, and (3) request your customers to inform their employees and customers as well.

I. IDENTIFICATION

PRODUCT NAME:	BUTYL CELLOSOLVE®		
CHEMICAL NAME:	2-Butoxyethanol	CHEMICAL FAMILY:	Glycol Ethers
FORMULA:	$C_4H_9OC_2H_4OH$	MOLECULAR WEIGHT:	118.18
SYNONYMS:	Ethylene Glycol Monobutyl Ether		
DEPARTMENT OF TRANSPORTATION	Hazard Classification Shipping Name	Combustible liquid Combustible liquid, NOS	
CAS # 111-76-2	CAS NAME	Ethanol, 2-butoxy	

II. PHYSICAL DATA

BOILING POINT, 760 mm Hg	171.2°C (340.2°F)	FREEZING POINT	-70.4°C (-94.7° F)
SPECIFIC GRAVITY (H_2O = 1)	0.9022 at 20/20°C	VAPOR PRESSURE at 20°C	0.6 mm Hg
VAPOR DENSITY (air = 1)	4.1	SOLUBILITY IN WATER, % by wt.	Complete
PERCENT VOLATILES VOLUME	100	EVAPORATION RATE (Butyl Acetate = 1)	0.08
APPEARANCE AND ODOR	Colorless liquid; mild odor		

III. INGREDIENTS

MATERIAL	%	TLV	HAZARD
2-Butoxyethanol	100	25 ppm (skin) ACGIH 50 ppm (skin) OSHA	Toxic; Eye Irritant; Combustible

IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	150°F, Tag Closed Cup, ASTM D 56; 157°F, Tag Open Cup, ASTM D 1310			
FLAMMABLE LIMITS IN AIR, % by volume	LOWER	1.1	UPPER	10.6
EXTINGUISHING MEDIA	Use water spray, carbon dioxide, dry chemical, alcohol-type, or universal-type foams applied by manufacturers' recommended techniques.			
SPECIAL FIRE FIGHTING PROCEDURES	Use self-contained breathing apparatus and protective clothing.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None			

EMERGENCY PHONE NUMBER • 1-800-UCC-HELP • This number is available days, nights, weekends, and holidays.

MATERIAL SAFETY DATA SHEET

EFFECTIVE DATE: AUGUST 1, 1985

42-062A

Union Carbide Corporation urges the customer receiving this Material Safety Data Sheet to study it carefully to become aware of hazards, if any, of the product involved. In the interest of safety you should (1) notify your employees, agents, and contractors of the information on this sheet, (2) furnish a copy to each of your customers for the product, and (3) request your customers to inform their employees and customers as well.

I. IDENTIFICATION

PRODUCT NAME:	CELLOSOLVE® SOLVENT		
CHEMICAL NAME:	2-Ethoxyethanol	CHEMICAL FAMILY:	Glycol Ethers
FORMULA:	$C_2H_5OC_2H_4OH$	MOLECULAR WEIGHT:	90.12
SYNONYMS:	Ethylene Glycol Monoethyl Ether		
DEPARTMENT OF TRANSPORTATION	Hazard Classification Shipping Name	Combustible liquid Ethylene Glycol Monoethyl Ether	
CAS # 110-80-5	CAS NAME	Ethanol, 2-ethoxy-	

II. PHYSICAL DATA

BOILING POINT, 760 mm Hg	135.6°C (276.1°F)	FREEZING POINT	-90°C (-130°F)
SPECIFIC GRAVITY (H_2O = 1)	0.9311 at 20/20°C	VAPOR PRESSURE at 20°C	4 mm Hg
VAPOR DENSITY (air = 1)	3.1	SOLUBILITY IN WATER, % by wt.	Complete at 20°C
PERCENT VOLATILES BY VOLUME	100	EVAPORATION RATE (Butyl Acetate = 1)	0.41
APPEARANCE AND ODOR	Colorless liquid; mild and nonresidual odor		

III. INGREDIENTS

MATERIAL	%	TLV	HAZARD
2-Ethoxyethanol	100	See Section V	Irritant; toxic; combustible

IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	108°F, Tag closed cup, ASTM D 56; 120°F, Tag open cup, ASTM D 1310				
FLAMMABLE LIMITS IN AIR, % by volume	LOWER	1.7 at 200°F	UPPER	15.6 at 200°F	
EXTINGUISHING MEDIA	Use water spray, carbon dioxide, dry chemical, alcohol-type, or universal-type foams applied by manufacturers' recommended techniques.				
SPECIAL FIRE FIGHTING PROCEDURES	Use self-contained breathing apparatus and protective clothing.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None				

EMERGENCY PHONE NUMBER • 304/744-3487 • This number is available days, nights, weekends, and holidays.

MATERIAL SAFETY DATA SHEET

EFFECTIVE DATE: September 1, 1983 42-061

Union Carbide Corporation urges the customer receiving this Material Safety Data Sheet to study it carefully to become aware of hazards, if any, of the product involved. In the interest of safety you should (1) notify your employees, agents, and contractors of the information on this sheet, (2) furnish a copy of each of your customers for the product, and (3) request your customers to inform their employees and customers as well.

I. IDENTIFICATION

PRODUCT NAME:	METHYL CELLOSOLVE®		
CHEMICAL NAME:	2-Methoxyethanol	CHEMICAL FAMILY:	Glycol Ethers
FORMULA:	$CH_3OC_2H_4OH$	MOLECULAR WEIGHT:	76.09
SYNONYMS:	Ethylene Glycol Monomethyl Ether		
DEPARTMENT OF TRANSPORTATION	Hazard Classification Shipping Name	Combustible liquid Ethylene Glycol Monomethyl Ether	
CAS # 109-86-4	CAS NAME	Ethanol, 2-methoxy-	

II. PHYSICAL DATA

BOILING POINT, 760 mm Hg	124°C (256.1°F)	FREEZING POINT	-85.1°C (-121.2°F)
SPECIFIC GRAVITY (H_2O = 1)	0.9663 at 20/20°C	VAPOR PRESSURE at 20°C	6.17 mm Hg
VAPOR DENSITY (air = 1)	2.62	SOLUBILITY IN WATER, % by wt	Complete
PERCENT VOLATILES BY VOLUME	100	EVAPORATION RATE (Butyl Acetate = 1)	0.62
APPEARANCE AND ODOR	Water-white liquid; mild and characteristic odor.		

III. INGREDIENTS

MATERIAL	%	TLV	HAZARD
2-Methoxyethanol	100	See Section V	Toxic; Combustible

IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	103°F, Tag closed cup ASTM D 56 110°F, Tag open cup ASTM D 1310			
FLAMMABLE LIMITS IN AIR, % by volume	LOWER	2.5	UPPER	19.8
EXTINGUISHING MEDIA	Use water spray, carbon dioxide, dry chemical, alcohol-type or universal-type foams applied by manufacturer's recommended technique.			
SPECIAL FIRE FIGHTING PROCEDURES	Use supplied breathing air and protective clothing.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None			

EMERGENCY PHONE NUMBER • 304/744-3487 • This number is available days, nights, weekends, and holidays.

IRANS CHEM. 3/31/86 042-054-H Dean Stoung

Badische Corporation

MATERIAL SAFETY DATA SHEET (300

PRODUCT NAME: CYCLOHEXANONE

ADDRESS	PHONE NO.
602 Copper Road, Freeport, Texas 77541	(409)238-6100

CHEMICAL NAME AND SYNONYMS: Cyclohexanone; Anone; Cyclohexyl Ketone

APR 1986

TRADE NAME AND SYNONYMS: Cyclohexanone

CHEMICAL FAMILY: Ketone

FORMULA: $C_6H_{10}O$

CAS REGISTRY NO.	ISSUE DATE:	REVISION DATE
108-94-1	OCTOBER 1985	New

HAZARDOUS INGREDIENTS/COMPOSITION INFORMATION

Cyclohexanone - 99.8% minimum

HEALTH HAZARD SUMMARY

NS AND SYMPTOMS OF EXPOSURE:

Overexposure to cyclohexanone can cause irritation to the eyes, nose and throat. Eye contact with the liquid can cause moderately severe irritation and reversible corneal injury. Vapor contact is mildly irritating to the eyes. Liquid cyclohexanone is a moderate skin irritant. Repeated or prolonged contact can defat the skin resulting in irritation or dermatitis. Minor absorption can occur through skin contact. Cyclohexanone vapor is irritating to the nose and throat and excessive exposure can cause narcosis, headache, tremors and other central nervous system effects.

PRIMARY ROUTES OF EXPOSURE:

SKIN CONTACT
EYE CONTACT
INHALATION

EXPOSURE LIMITS:

OSHA PEL: 50 ppm (200 mg/m^3) TWA

ACGIH TLV (1985-86): 25 ppm (100 mg/m^3) TWA (skin)

TOXICOLOGICAL PROPERTIES:

Oral - Rat LD50: 1.62 g/kg
Dermal - Rabbit LD50: 1.0 g/kg
INH - Rat: Exposure for 4 hours @ 20,000 ppm resulted in death of one of six animals.
INH - Guinea Pig: Exposure for 6 hours @ 4,000 ppm caused central nervous system depression and lacrimation.
INH - Monkey: Exposure for 6 hours/day for 50 days @ 190 ppm caused slight liver and kidney damage.

Cyclohexanone can cause irritation of the eyes, nose and throat in humans at 50 ppm. Because it can be detected at 25 ppm in air, its good odor warning properties should prevent injury. The TLV was set at ppm to prevent irritation and possible liver and kidney damage.

042-052

EXXON CHEMICALS

MATERIAL SAFETY DATA SHEET

EXXON CHEMICAL AMERICAS • P.O. BOX 3272, HOUSTON, TEXAS 77001
A Division of EXXON CHEMICAL COMPANY, A Division of EXXON CORPORATION

06/13/88

NO. 92160000

SECTION I PRODUCT IDENTIFICATION & EMERGENCY INFORMATION

PRODUCT NAME
Methyl Isobutyl Ketone

CHEMICAL NAME
4-Methyl-2-Pentanone CAS 108-10-1

CHEMICAL FAMILY
Ketone

PRODUCT APPEARANCE
Clear colorless liquid with a characteristic pungent odor.

EMERGENCY TELEPHONE NUMBERS: EXXON CHEMICAL AMERICAS 713-870-6000
CHEMTREC 800-424-9300

SECTION II HAZARDOUS INGREDIENT INFORMATION

This product is hazardous as defined in CFR1910.1200.
OSHA HAZARD
Flammable
PEL; TLV
Eye irritant

For additional information see Section III.

SECTION III HEALTH INFORMATION AND PROTECTION

NATURE OF HAZARD

EYE CONTACT:
Irritating, and may injure eye tissue if not removed promptly.

SKIN CONTACT:
Frequent or prolonged contact may irritate and cause dermatitis.
Low order of toxicity.

INHALATION:
High vapor concentrations are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic and may have other central nervous system effects.
Low order of toxicity.

INGESTION:
Low order of toxicity.
Small amounts of the liquid aspirated into the respiratory system during ingestion, or from vomiting, may cause bronchiopneumonia or pulmonary edema.

FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water for at least 15 minutes. Get prompt medical attention.

SKIN CONTACT:
Immediately flush with large amounts of water; use soap if available. Remove contaminated clothing, including shoes, after flushing has begun.

INHALATION:
Using proper respiratory protection, immediately remove the affected victim from exposure. Administer artificial respiration if breathing is stopped. Keep at rest. Call for prompt medical attention.

EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Immediately flush eyes for 15 minutes with water. Include under eyelids. Obtain medical attention. Contact lenses should not be worn when working with this chemical.

SKIN CONTACT:
Remove contaminated clothing. Flush contaminated skin with soap or mild detergent and water. If irritation persists, obtain medical attention.

INHALATION:
Remove to fresh air. Restore breathing if necessary and immediately obtain medical attention. Keep the affected person warm and at rest.

INGESTION: Obtain medical attention immediately. If exposed person is conscious, immediately give large quantities of water and induce vomiting by touching back of throat. Do not attempt to make unconscious person vomit.

PHYSICAL DATA

BOILING POINT: 156.7°C	**SPECIFIC GRAVITY (H_2O=1):** 0.95 @ 20/20°C
VAPOR PRESSURE: 2 mm Hg @ 20°C	**VAPOR DENSITY (AIR=1):** 3.4
FREEZING POINT: -45°C	**MOLECULAR WT.:** 98.16
SOLUBILITY IN WATER: 9 g/100g @ 20°C	**APPEARANCE AND ODOR:** Water - white to pale yellow oily liquid with an odor of peppermint and acetone. Odor threshold is 0.24 ppm.

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED):	**AUTOIGNITION TEMPERATURE:**	**FLAMMABLE LIMITS (% BY VOLUME)**
44°C (T.C.C.)	420°C	**LEL** 1.1 **UEL** 8.1

EXTINGUISHING MEDIA:

Water mist, CO_2, dry chemical, foam

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Use water spray to cool containers, to dilute leaking materials and to diffuse vapors. Vapors are heavier than air, and may travel to a source of ignition causing flashback. Firefighters should use self-contained breathing apparatus.

REACTIVITY DATA

STABILITY		**CONDITIONS TO AVOID:**
Unstable		Excessive heat; Ignition sources.
Stable	X	

INCOMPATIBILITY (Materials to avoid): Strong oxidizing agents (such as nitric acid), reducing agents, nitrates, aldehydes, nitric acid + hydrogen peroxide, mercaptans. Cyclohexanone can attack many plastics, resins and rubbers.

HAZARDOUS DECOMPOSITION PRODUCTS:
Incomplete thermal oxidation can produce carbon monoxide and carbon dioxide.

HAZARDOUS POLYMERIZATION		**CONDITIONS TO AVOID:**
May occur		Stable under normal storage conditions.
Will not occur	X	

SECTION VIII TYPICAL PHYSICAL & CHEMICAL PROPERTIES

SP. GRAVITY REF. TEMP., °F 0.8 at 68/68	VAPOR PRESSURE, mmHg at °F 0.75 at 50
SOLUBILITY IN WATER, WT. % at °F 2 68	VISCOSITY OF LIQUID, cST at °F 0.7 at 68
SP. GRAVITY OF VAPOR, at 1 ATM AIR=1 3.45	FREEZING MELTING POINT/RANGE, °F -119.2
E PORATION RATE, n-BU ACETATE=1 1.7	BOILING POINT/RANGE, °F 236.84 to 242.96

SECTION IX REACTIVITY DATA

STABILITY? Stable	HAZARDOUS POLYMERIZATION OCCUR? Will not occur
NDITIONS TO AVOID INSTABILITY Not Applicable	CONDITIONS TO AVOID HAZARDOUS POLYMERIZATION Not Applicable

MATERIALS AND CONDITIONS TO AVOID INCOMPATIBILITY

ustic, amines, alkanolamines, aldehydes, ammonia, strong oxidizing agents, and chlorinated compounds.

ZARDOUS DECOMPOSITION PRODUCTS

None

SECTION X TRANSPORT AND STORAGE

DOT CLASSIFICATION Flammable liquid	UN NUMBER U.S. DOT Identification Number: UN 1993

ECTROSTATIC ACCUMULATION HAZARD

Yes, use proper grounding procedure

STORAGE TEMPERATURE, °F Ambient	LOADING/UNLOADING TEMPERATURE, °F Ambient
ORAGE/TRANSPORT PRESSURE, mmHg Atmospheric	VISCOSITY AT LOADING/UNLOADING TEMPERATURE, cST 0.7

SECTION XI OTHER INFORMATION

FERENCE NUMBER HDHA-C-00027	DATE PREPARED JUNE 16, 1988	SUPERCEDES ISSUE DATE JUNE 9, 1988

FOR ADDITIONAL PRODUCT INFORMATION CONTACT YOUR TECHNICAL SALES REPRESENTATIVE

42-051

EXXON CHEMICALS

MATERIAL SAFETY DATA SHEET

EXXON CHEMICAL AMERICAS • P.O. BOX 3272, HOUSTON, TEXAS 77001
A Division of EXXON CHEMICAL COMPANY, A Division of EXXON CORPORATION

06/14/88

NO. 92050000

SECTION I PRODUCT IDENTIFICATION & EMERGENCY INFORMATION

PRODUCT NAME
Methyl Ethyl Ketone

CHEMICAL NAME
Methyl ethyl ketone — CAS 78-93-3

CHEMICAL FAMILY
Ketone

PRODUCT APPEARANCE
Clear colorless liquid.

EMERGENCY TELEPHONE NUMBERS: EXXON CHEMICAL AMERICAS 713-870-6000
CHEMTREC 800-424-9300

SECTION II HAZARDOUS INGREDIENT INFORMATION

This product is hazardous as defined in CFR1910.1200.

OSHA HAZARD
Flammable
PEL; TLV
Eye irritant

For additional information see Section III.

SECTION III HEALTH INFORMATION AND PROTECTION

NATURE OF HAZARD

EYE CONTACT:
Severely irritating. If not removed promptly, will injure eye tissue, which may result in permanent damage.

SKIN CONTACT:
Frequent or prolonged contact may irritate and cause dermatitis.
Low order of toxicity.

INHALATION:
High vapor concentrations are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic and may have other central nervous system effects.
Low order of toxicity.

INGESTION:
Low order of toxicity.
Small amounts of the liquid aspirated into the respiratory system during ingestion, or from vomiting, may cause bronchiopneumonia or pulmonary edema.

FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water for at least 15 minutes. Get prompt medical attention.

SKIN CONTACT:
Immediately flush with large amounts of water; use soap if available. Remove contaminated clothing, including shoes, after flushing has begun.

INHALATION:
Using proper respiratory protection, immediately remove the affected victim from exposure. Administer artificial respiration if breathing is stopped. Keep at rest. Call for prompt medical attention.

MATERIAL SAFETY DATA SHEET

UNOCAL 76

UNOCAL CHEMICALS DIVISION
PETROCHEMICALS GROUP

42-050

Product Name: ACETONE
Product Code No: 15450

Issue Date: 5/23/87

MANUFACTURER:	Transportation Emergencies:
UNOCAL CHEMICALS DIVISION UNION OIL COMPANY OF CALIFORNIA 1345 N. MEACHAM SCHAUMBURG, ILLINOIS 60196 CONTACT FOR FURTHER INFORMATION: MSDS COORDINATOR (312) 490-2500	Call CHEMTREC (800) 424-9300 Cont. U.S. (202) 483-7616 (Collect) from Alaska & Hawaii Health Emergencies: CALL LOS ANGELES POISON INFORMATION CENTER (24 hrs.) (213) 664-2121

PRODUCT IDENTIFICATION

PRODUCT NAME: ACETONE

SYNONYMS: AMSCO SOLV 5450
BETA-KETOPROPANE
DIMETHYL KETONE
DIMETHYLFORMALDEHYDE
DIMETHYLKETAL
KETONE PROPANE
METHYL KETONE
PROPANONE

GENERIC NAME: VOLATILE SOLVENT

CHEMICAL FAMILY: OXYGENATED HYDROCARBON

DOT PROPER SHIPPING NAME: ACETONE

ID NUMBER: UN1090

DOT HAZARD CLASSIFICATION: FLAMMABLE LIQUID

CAS NUMBER: 67-64-1

SECTION I - HAZARDOUS INGREDIENTS/EXPOSURE LIMITS		CAS NO.	TLV	UNITS	AGENCY	TYPE
ACETONE	100%	67-64-1	750.0000	PPM	ACGIH	TWA
			1000.0000	PPM	ACGIH	STEL
			1000.0000	PPM	OSHA	TWA
			3000.0000	PPM	CAL OSHA	CEIL

SECTION II - EMERGENCY AND FIRST AID PROCEDURES

EMERGENCY
Have physician call LOS ANGELES POISON INFORMATION CENTER (24 hrs.) (213) 664-2121

EYE CONTACT:

IMMEDIATELY MOVE VICTIM AWAY FROM EXPOSURE TO VAPORS AND INTO FRESH AIR. IF IRRITATION OR REDNESS DEVELOPS, FLUSH EYES WITH CLEAN WATER AND SEEK IMMEDIATE MEDICAL ATTENTION. FOR DIRECT CONTACT, FLUSH THE AFFECTED EYE(S) WITH CLEAN WATER FOR AT LEAST 20 MINUTES. SEEK IMMEDIATE MEDICAL ATTENTION.

42-022

TENNECO

CHEMCENTRAL ATLANTA

MATERIAL SAFETY DATA SHEET

CHEMCENTRAL/Atlanta P.O. Box 47280 Atlanta, Georgia 30362
Alchemy Place Doraville, Georgia 30360 (404) 448-7123

APR 07 1986

MATERIAL: Solvent Xylene
MSDS NO. 313 DATE 3/85

I. MATERIAL IDENTIFICATION

MATERIAL / TRADE NAME: Solvent Xylene

SYNONYMS: Xylene 42-022

CHEMICAL FAMILY / FORMULA: Aromatic Hydrocarbon/C_8H_{10}

CAS NO.: Mixture

24 HOUR EMERGENCY TELEPHONE
TENNECO 504/279-9481
CHEMTREC 800 424-9300

HAZARD RATING*

2	HEALTH
3	FIRE
0	REACTIVITY

0 LEAST 3 HIGH
1 SLIGHT 4 EXTREME
2 MODERATE * NFPA

II. INGREDIENTS

COMPOSITION	%	TOXICITY DATA
Meta Xylene (CAS #108-38-3)	>65	Human, Inhalation
Ethyl Benzene (CAS #100-41-4)	>25	TCLo 200 ppm (Irritation)
Ortho Xylene (CAS #95-47-6)	3	
Para Xylene (CAS #106-42-3)	2	Rat, Oral LD50 4.3 g/kg. Rat Inhalation LC50 6700 ppm/4 hr. (29 mg/L)

III. PHYSICAL DATA

BOILING POINT, 760mm/Hg — 137.7°F (58.7°C) IBP	SOLUBILITY IN H_2O, % BY WEIGHT — Insoluble
SPECIFIC GRAVITY, H_2O=1 — 0.87	EVAPORATION RATE, BUTAL ACETATE=1 — 0.5 Approximately
VAPOR PRESSURE, mm/Hg — 8.5 @ 25°C	Molecular Weight — 106.17
VAPOR DENSITY, AIR=1 — 3.0	
VOLATILES, % BY VOLUME — 100	

APPEARANCE AND ODOR: Clear, colorless liquid with aromatic hydrocarbon odor

IV FIRE AND EXPLOSION DATA

FLASH POINT AND TEST METHOD	AUTO IGNITION TEMPERATURE	FLAMMABILITY LIMITS IN AIR, % BY VOLUME
81°F (27.2°C) TCC	800°F (426.7°C)	LOWER 1.0 UPPER 7.0

EXTINGUISHING MEDIA: Foam, dry chemical, Halon, CO_2. Water may not be effective. Water spray (fog) may be used to cool containers. Water stream may splash and spread flaming liquid.

SPECIAL FIRE FIGHTING PROCEDURES: Class IC flammable liquid. Vapors can readily form explosive mixtures with air. Heavier than air vapors can flow along surfaces to distant ignition sources and flash back. Firefighters should use self-contained breathing equipment in an enclosed area.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Keep away from heat, sources of ignition, oxidizers.

72-62-7920-01

MATERIAL SAFETY DATA SHEET

Ashland Chemical Company
DIVISION OF ASHLAND OIL, INC.
P. O. BOX 2219, COLUMBUS, OHIO 43216 • (614) 889-3333
24-HOUR EMERGENCY TELEPHONE (606) 324-1133

Ashland

42-007

KEROSENE

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

****

oduct Name: KEROSENE
S NUMBER: 8008-20-6

CRODA INKS CORP.
ATTN: DEAN ROEING
7777 NORTH MERRIMAC AVENUE
NILES, IL 60648-3490

05 88 092 3140118-060

PRODUCT:
INVOICE: REQST
INVOICE DATE: 09/23/88
TO:

Data Sheet No: 0000584-004
Prepared: 12/09/86
Supersedes: 11/04/85

SECTION I—PRODUCT IDENTIFICATION

neral or Generic ID: ALIPHATIC HYDROCARBON

T zard Classification: COMBUSTIBLE (173.115)

SECTION II—COMPONENTS

E COMPOSITION OF THIS PRODUCT IS BEING WITHHELD AS A TRADE SECRET.

IF PRESENT, IARC, NTP AND OSHA CARCINOGENS ARE IDENTIFIED IN THIS SECTION
SEE DEFINITION PAGE FOR CLARIFICATION

GREDIENT	% (by WT)	PEL	TLV	Note
RO ENE C S #: 8008-20-6	100			(1)

RECEIVED
SEP 29 1988

otes:

1) PEL/TLV NOT ESTABLISHED FOR THIS MATERIAL
NIOSH RECOMMENDS A LIMIT OF 100MG/M3 FOR 10 HR.

SECTION III—PHYSICAL DATA

il Point	for PRODUCT	320.00 - 365.00 Deg F (160.00 - 185.00 Deg C) @ 760.00 mm Hg
por Pressure	for PRODUCT	5.00 mm Hg @ 77.00 Deg F (25.00 Deg C)
ec fic Vapor Density	AIR = 1	4.5
ecific Gravity		.825 @ 60.00 Deg F (15.55 Deg C)
rc t Volatiles		45-50%
aporation Rate	(N-BUTYL ACETATE = 1)	.04

SECTION IV—FIRE AND EXPLOSION INFORMATION

AS POINT(TCC) 120.0 - 125.0 Deg F (48.9 - 51.7 Deg C)

PLOSIVE LIMIT (PRODUCT) LOWER - .7%

TI UISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL

ZA OUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.

REFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WHEN FIGHTING FIRES.

EC L FIRE & EXPLOSION HAZARDS: VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR BE MOVED BY VENTILATION AND IGNITED BY HEAT, PILOT LIGHTS, OTHER FLAMES AND IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.

NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.

ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS INCLUDING TANK CARS AND TANK TRUCKS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.

PA CODES: HEALTH- 2 FLAMMABILITY- 2 REACTIVITY- 0

SECTION V—HEALTH HAZARD DATA

RM PLE EXPOSURE LEVEL: SEE SECTION II

FE OF ACUTE OVEREXPOSURE: FOR PRODUCT

ES - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.
IN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.
EATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE AND POSSIBLE UNCONSCIOUSNESS, AND EVEN DEATH.

CONTINUED ON PAGE: 2

42-007

013 ***

M A T E R I A L S A F E T Y D A T A S H E E T

REV: 1/25/86

MTECH INDUSTRIES, INC.
655 DES PERES ROAD
P.O. BOX 31000
ST LOUIS, MO 63131
PHONE: (314) 966-9900

PROD 0047
B/L 444207

HEALTH = _ REACTIVITY = _
FIRE = _ EQUIPMENT = _

HAZARD RATINGS : 0 = LEAST 1 = SLIGHT
2 = MODERATE 3 = HIGH
4 = EXTREME

SECTION I ========== PRODUCT DESCRIPTION ==========

PRODUCT NAME: NO. 1 FUEL OIL

SYNONYMS: KEROSENE

CHEMICAL FAMILY: ALIPHATIC HYDROCARBON

SECTION II ========== PRODUCT COMPOSITION ==========

INGREDIENT	VOL %	CAS #	TLV
HYDROCARBON	100	64742-96-7	NE

SECTION III ========== PHYSICAL PROPERTIES ==========

BOILING RANGE: 347-545 F

SPECIFIC GRAVITY (WATER=1): .81

VAPOR PRESSURE AT 20C (MM OF HG): @ 100 F LESS THAN 1

VAPOR DENSITY (AIR=1): 4.5

SOLUBILITY IN WATER: NEGLIGIBLE

EVAPORATION RATE: 0.10

% VOLATILES: 100

APPEARANCE AND ODOR: CLEAR, LIGHT YELLOW ODOR: MILD, RESIDUAL

OTHER:

SECTION IV ========== FIRE AND EXPLOSION DATA ==========

LOWER FLAMMABILITY LIMITS (% IN AIR): 0.7 - 5

FLASH POINT (AND METHOD): T.C.C. 138 F

FLAMMABILITY CLASSIFICATION: CLASS II

412-003

4 -003 H ~~42-080~~

TRIANGLE REFINERIES, INC.
SPECIALTY PRODUCTS DIVISION
3020 KNIGHT STREET • SUITE 130 • SHREVEPORT, LOUISIANA 71105
TELEPHONE (800) 548-3417 (318) 861-0954
A SUBSIDIARY OF KERR-McGEE REFINING CORPORATION

~~42-080-H~~

Mineral spirits also present in products

MATERIAL SAFETY DATA SHEET

MSDS NUMBER: CV-1321

EMERGENCY TELEPHONE	COMPANY	CHEMTREC
	405/270-2526	800/424-9300

I. PRODUCT IDENTIFICATION

PRODUCT	CHEMICAL NAME	
KERMAC 180-210 Naphtha	Light Aliphatic Solvent Naphtha	
CHEMICAL FAMILY	**FORMULA**	**CAS NUMBER**
Petroleum Hydrocarbon Naphtha	C_6-C_{10}	64742-89-8

NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATING CODES	HEALTH CODE	FIRE CODE	REACTIVITY CODE
Least - 0 Slight - 1 Moderate - 2 High - 3 Extreme - 4	1	3	0

II. HAZARDOUS COMPONENTS

INGREDIENT	%	OSHA LIMIT	TLV
Naphtha	100	Petroleum distillates (naphtha) TWA-500 ppm	Similar to VM&P Naphtha TWA-300 ppm STEL-400 ppm
Benzene	< 0.1	TWA-10 ppm Ceiling-25 ppm	TWA-10 ppm STEL-25 ppm
Toluene	< 0.1	TWA-200 ppm Ceiling-300 ppm	TWA-100 ppm STEL-150 ppm

III. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	VAPOR PRESSURE	EVAPORATION (ETHYL ETHER = 1)
180-210°F	196 mmHg @ 100°F	Estimated 7 Times Slower
PERCENT VOLATILE BY VOLUME (%)	**MOLECULAR WEIGHT**	**APPEARANCE**
100	99	Water White Liquid
ODOR AND THRESHOLD	**MELTING POINT**	**VAPOR DENSITY (AIR = 1)**
Petroleum Naphtha-Approx. 10 ppm	Not Available	3.3
SPECIFIC GRAVITY (H_2O = 1)	**VISCOSITY**	**SOLUBILITY (G/100G WATER AT 20 °C)**
0.69	<32 SUS @ 100°F	Negligible

APPENDIX C

REPRESENTATIVE MANIFESTS FOR OFF-SITE DISPOSAL

SEE INSTRUCTIONS ON REVERSE SIDE OF COPY 6.

STATE OF WISCONSIN
Chapter 144, Wis. Stats.
Form 4400-66 Rev. 7-87

Mail Copies 1 & 3 To:

State of Wisconsin
Department of Natural Resources
Bureau of Solid Waste Mgt.
Box 8094
Madison, Wisconsin 53708

FOR DNR USE ONLY

Please print or type. Form designed for use on elite (12-pitch) typewriter.

Form Approved. OMB No. 2050-0039. Expires 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: ILD 002293124
Manifest Document No.: 0 1 0 1 1 9
2. Page 1 of
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Croda Inks Corp.
7777 N. Merrimac Avenue
Niles, IL 60648
4. Generator's Phone (312) 967-7575

A. State Manifest Document Number: WI G 72059
B. State Generator's ID:

5. Transporter 1 Company Name: Avganic Industries, Inc.
6. US EPA ID Number: WID 000808824
C. State Transporter's ID:
D. Transporter's Phone:

7. Transporter 2 Company Name:
8. US EPA ID Number:
E. State Transporter's ID:
F. Transporter's Phone:

9. Designated Facility Name and Site Address
Avganic Industries, Inc.
114 S. Main St.
Cottage Grove, WI 53529
10. US EPA ID Number: WID 000808824
G. State Facility's ID:
H. Facility's Phone:

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste Liquid NOS, RQ ORM-E NA 9189	20	D M	1100	G	K 0 8 6
c.					
e.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
10589-R-20841
P.O.# 9408

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations and according to the requirements of the Wisconsin Department of Natural Resources. If I am a large quantity generator, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment;

OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name & Position Title	Signature	Date (Month Day Year)
EDWIN E. BROWN - GENERAL MANAGER	Edwin E Brown	

17. TRANSPORTER 1 Acknowledgement of Receipt of Materials

Printed/Typed Name & Position Title	Signature	Date (Month Day Year)

18. TRANSPORTER 2 Acknowledgement of Receipt of Materials

Printed/Typed Name & Position Title	Signature	Date (Month Day Year)

19. Discrepancy Indication Space

FACILITY OWNER OR OPERATOR: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name & Position Title	Signature	Date (Month Day Year)

EPA Form 8700-22 (Rev. 9-86) Previous editions are obsolete.

Copy Distribution: 1 — Wis. DNR 4 — Facility
2 — Generator 5 — Generator
3 — Wis. DNR 6 — Transporter
Copies 1 & 3 mail to Wis. DNR at above address.

Emergency 24 Hour Assistance Telephone Number
In Wisconsin (608) 266-3232
Outside Wisconsin (800) 424-8802

COPY 1—
GENERATOR SEND TO DNR

SEE INSTRUCTIONS ON REVERSE SIDE OF COPY 6.

STATE OF WISCONSIN
Chapter 144, Wis. Stats.
Form 4400-66 Rev. 7-87

RECEIVED
JUN - 8 1989

Mail Copies 1 & 3 To:
State of Wisconsin
Department of Natural Resources
Bureau of Solid Waste Mgt.
Box 8094
Madison, Wisconsin 53708

FOR DNR USE ONLY

Please print or type. Form designed for use on elite (12-pitch) typewriter.

Form Approved. OMB No. 2050-0039. Expires 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: ILD 002293124
Manifest Document No.: 0 0 0 1 6
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address:
CRODA INKS CORP.
7777 N. MERRIMAC AVE.
NILES, IL 60648

4. Generator's Phone: (312) 967-7575

A. State Manifest Document Number: WI G 72057
B. State Generator's ID: N/A

5. Transporter 1 Company Name: AVGANIC
6. US EPA ID Number: WID 000808824
C. State Transporter's ID: 236
D. Transporter's Phone: 608-257-1414

7. Transporter 2 Company Name: N/A
8. US EPA ID Number: N/A
E. State Transporter's ID:
F. Transporter's Phone:

9. Designated Facility Name and Site Address:
Avganic
Cottage Grove, WI 53527
10. US EPA ID Number: WID 000808824
G. State Facility's ID:
H. Facility's Phone: 608-257-1414

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. WASTE FLAMMABLE LIQUID, N.O.S., R.Q.	56	DM	2170	G	D001
b.					
c.					
d.					

Additional Descriptions for Materials Listed Above:
AUTH # 10580-R-20153

K. Handling Codes for Wastes Listed Above:

15. Special Handling Instructions and Additional Information:
D001, K086

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations and according to the requirements of the Wisconsin Department of Natural Resources. If I am a large quantity generator, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment;

OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name & Position Title	Signature	Date (Month Day Year)
DEAN ROEING, GOVERNMENT AFFAIRS MANAGER		5 31 89

17. TRANSPORTER 1 Acknowledgement of Receipt of Materials

Printed/Typed Name & Position Title	Signature	Date (Month Day Year)
MIKE WADE DRIVER		05 31 89

18. TRANSPORTER 2 Acknowledgement of Receipt of Materials

Printed/Typed Name & Position Title	Signature	Date (Month Day Year)

TRANSPORTER

19. Discrepancy Indication Space

FACILITY OWNER OR OPERATOR: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name & Position Title	Signature	Date (Month Day Year)
MICHAEL SPELICER DM		6 1 89

FACILITY

EPA Form 8700-22 (Rev. 9-86) Previous editions are obsolete.

Copy Distribution:
1 — Wis. DNR
2 — Generator
3 — Wis. DNR
4 — Facility
5 — Generator
6 — Transporter
Copies 1 & 3 mail to Wis. DNR at above address.

Emergency 24 Hour Assistance Telephone Number
In Wisconsin (608) 266-3232
Outside Wisconsin (800) 424-8802

COPY 5—

STATE OF ILLINOIS

P.O. BOX 19[illegible], SPRINGFIELD, ILLINOIS 62794-9276 (217) 782-[illegible]

FOR SHIPMENT OF HAZARDOUS, INFECTIOUS AND SPECIAL WASTE.

State Form LPC 62 8/81 IL532-061

PLEASE TYPE (Form designed for use on elite (12-pitch) typewriter.) **EPA Form 8700-22 (Rev. 9-88)** Form Approved. OMB No. 2050-0039, Expires 9-30-91

UNIFORM [redacted] WASTE MANIFEST

1. Generator's US EPA ID No. [redacted] Manifest Document No. [redacted]

2. Page 1 of [redacted] Information in the shaded areas is not required by Federal law, but is required by Illinois law.

3. Generator's Name and Mailing Address: Croda Ink Corporation, 7777 North Merrimac Avenue, Niles, Illinois 60648

Location If Different:

4. Generator's Phone (312) 967-7573

A. Illinois Manifest Document Number: IL 4115266 MANIFEST FEE PAID

B. Illinois Generator's ID: 0 3 1 2 0 1 5 0 1 1

5. Transporter 1 Company Name: Mr. Fuel Inc. 6. US EPA ID Number [redacted]

C. Illinois Transporter's ID [redacted]

D. (312) 720-0700 Transporter's Phone

7. Transporter 2 Company Name [redacted] 8. US EPA ID Number [redacted]

E. Illinois Transporter's ID [redacted]

F. ( ) Transporter's Phone

9. Designated Facility Name and Site Address: Chem-Clear, 8800 S. Stony Island Av., Chicago IL 60617 10. US EPA ID Number ILD[redacted]

G. Illinois Facility's ID: 0 3 1 6 0 0 0 5 1

H. Facility's Phone 312) 646-6202

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
GENERATOR a. Adhesive Waste Not Hazardous By DOT	2-3	DM	1-2-5-5	1	EPA HW Number XX NA; Authorization Number
b. Croda Seal Not Hazardous By DOT	1 9	DM	1 0 4 5	1	EPA HW Number XX NA; Authorization Number
TRANSPORTER c.	40				EPA HW Number XX; Authorization Number
d.					EPA HW Number XX; Authorization Number

Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above In Item # 14

1 = Gallons 2 = Cubic Yards

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR,** if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date Month Day Year
Dean Roefue	[signature]	5 4 [illegible]

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month Day Year

19. Discrepancy Indication Space

FACILITY

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.

Printed/Typed Name	Signature	Date Month Day Year

This Agency is authorized to require, pursuant to Illinois Revised Statutes, Chapter 111½ Section 21, that this information be submitted to the Agency. Failure to provide the information may result in a civil penalty against the owner or operator of not to exceed $25,000 per day of violation. Falsification of this information may result in a fine up to $50,000 per day of violation and imprisonment up to 5 years. This form has been approved by the Forms Management Center

COPY 6. GENERATOR COPY

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
DIVISION OF SOLID AND HAZARDOUS WASTE
One Winter Street
Boston, Massachusetts 02108

...nt or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator US EPA ID No.: I L D 0 0 2 2 9 3 1 2 4 — Manifest Document No.: 0 0 0 1 5

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
CRODA INKS CORP.
7777 N. MERRIMAC AVE.
NILES, IL 60648

4. Generator's Phone (312) 967-7575

A. State Manifest Document Number: MA C 446489

B. State Gen. ID: Same

5. Transporter 1 Company Name: CLEAN HARBOR'S OF KINGSTON

6. US EPA ID Number: M A D 0 3 9 3 2 2 2 5 0

C. State Trans. ID: 04426916

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone ( )

E. State Trans. ID

9. Designated Facility Name and Site Address
CLEAN HARBORS OF BRAINTREE INC.
385 QUINCY AVENUE
BRAINTREE, MA 02184

10. US EPA ID Number: M A D 0 5 3 4 5 2 6 3 7

F. Transporter's Phone ( )

G. State Facility's ID: Not Required

H. Facility's Phone (617) 849-1807

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. HAZARDOUS WASTE LIQUID N.O.S. R.Q. ORM-E NA 9189	3 3	D F	1 8 1 5	1	K 0 8 6
b.					
c					

J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)
a.
c.
b.
d.

K. Handling Codes for Wastes Listed Above
a.
c.
b.
d.

15. Special Handling Instructions and Additional Information
FROM UNDERGROUND WASTE TANK

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date (Month Day Year)
MR. DEAN ROEING	Dean Roeing	03 26 89

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
John Griffin		03 26 89

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)

...n Approved OMB No. 2050-0039, Expires 9-30-91
...A Form 8700-22 (Rev. 9-86) Previous editions are obsolete.

COPY>b: DESTINATION STATE-MAILED BY GENERATOR

MA C 446489 COPY>b: DESTINATION STATE-MAILED BY GENERATOR

2200 CHURCHILL ROAD, SPRINGFIELD, ILLINOIS 62706 (217) 782-6761

LPC 62 8/81

Please print or type. (Form designed for use with elite (12-pitch) typewriter.) EPA Form 8700-22 (4) Form Approved. OMB No. 2000-0404. Expires 7-31-8

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. I L D 0 0 2 2 9 3 1 2 4 — Manifest Document No. 0072

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law, but is required by Illinois law.

3. Generator's Name and Mailing Address
Croda Inks Corporation
7777 N. Merrimac Avenue Niles, IL 60648-3490

4. Generator's Phone ( )

A. Illinois Manifest Document Number IL 1473743

B. Illinois Generator's ID 0 3 1 1 2 0 1 5 0 1 1

5. Transporter 1 Company Name: Set Liquid Waste
6. US EPA ID Number: I L D 0 0 0 8 1 0 5 4 9
C. Illinois Transporter's ID 0 0 4 9
D. (312) 537-9221 Transporter's Phone

7. Transporter 2 Company Name
8. US EPA ID Number
E. Illinois Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address
Chem-Clear Inc.
11800 S. Stony Island
Chicago, IL 60617
10. US EPA ID Number: I L D 0 0 0 6 0 8 4 7 1
G. Illinois Facility's ID 0 3 1 1 6 0 0 0 0 5 1
H. Facility's Phone (312) 646-7202

GENERATOR

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Hazardous Waste Liquid N. O. S. ORM-E NA 9189	X	0 0 1	T T	2 0 0 0	1	EPA HW Number K 0 1 8 6 / Authorization Number 0 0 0 0 2 0
b.							EPA HW Number / Authorization Number
c.							EPA HW Number / Authorization Number
d.							EPA HW Number / Authorization Number

APR 1986

J. Additional Descriptions for Materials Listed Above.

K. Handling Codes for Wastes Listed Above In Item #14
1 = Gallons 2 = Cubic Yards

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, and Illinois regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

Printed/Typed Name: Dean R. Roeing — Signature: Dean R. Roeing — Date: Month 03 Day 26 Year 86

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Michael H Kwiatkowski — Signature: Michael H Kwiatkowski — Date: Month 03 Day 26 Year 86

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space
312 - 967-7578

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.
Printed/Typed Name: Mark E. Douglas — Signature: Mark E. Douglas — Date: Month 03 Day 28 Year 86

IN ILLINOIS: 217 / 782-3637 — 24 HOUR EMERGENCY AND SPILL ASSISTANCE NUMBERS* — OUTSIDE ILLINOIS: 800 / 424-8802 or 202 / 426-267

DISTRIBUTION: PART - 1 GENERATOR PART - 2 IEPA PART - 3 FACILITY PART - 4 TRANSPORTER PART - 5 IEPA PART - 6 GENERATOR

Rev. #6

GENERATOR COPY – PART 1 - DO NOT REMOVE PART 1 FROM SET UNTIL COMPLETED.

This Agency is authorized to require, pursuant to Illinois Revised Statutes, 1983, Chapter 111½ Section 21, that this information be submitted to the Agency. Failure to provide the information may result in a civil penalty against or operator of not to exceed $25,000 per day of violation. Falsification of this information may result in a fine up to $50,000 per day of violation and imprisonment up to 5 years. This form has been approved by the Forms Center

2200 CHURCHILL ROAD, SPRINGFIELD, ILLINOIS 62706 (217) 782-6761

LPC 62 8/81

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) EPA Form 8700-22 (3-8-) Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. I L D 0 0 2 2 9 3 1 2 4 — Manifest Document No. 00014

2. Page 1 of 1

Information in the shaded areas is not required by Federal law, but is required by Illinois law

3. Generator's Name and Mailing Address
Croda Inks Corporation
7777 N. Merrimac Avenue Niles, IL 60648-3490

A. Illinois Manifest Document Number IL 014 73741

4. Generator's Phone (312) 967-7575

B. Illinois Generator's ID 0 3 1 2 0 1 5 0 1 1

5. Transporter 1 Company Name: Set Liquid Waste
6. US EPA ID Number: I L D 0 0 0 8 1 0 5 4 9

C. Illinois Transporter's ID 0 0 4 9

D. (312) 537-9221 Transporter's Phone

7. Transporter 2 Company Name
8. US EPA ID Number

E. Illinois Transporter's ID

F. ( ) Transporter's Phone

9. Designated Facility Name and Site Address
Chem-Clear Inc.
11800 S. Stony Island
Chicago, IL 60617
10. US EPA ID Number: I L D 0 0 0 6 0 8 4 7 1

G. Illinois Facility's ID 0 3 1 6 0 0 0 0 5 1

H. Facility's Phone (312) 646-6202

GENERATOR

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Hazardous Waste Liquid N. O. S. ORM-E NA 9189	X	0 0 1	T T	1500	1.	EPA HW Number K 0 1 8 6; Authorization Number 0 0 0 0 2 0
b.							EPA HW Number; Authorization Number
c.							EPA HW Number; Authorization Number
d.							EPA HW Number; Authorization Number

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above In Item #14
1 = Gallons 2 = Cubic Yards

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, and Illinois regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

Printed/Typed Name: SEVERINO S. PALINAS — Signature — Date: Month 08 Day 27 Year 86

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: GORDON RUHE — Signature — Date: Month 08 Day 27 Year 86

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.

Printed/Typed Name: L. BELINSKY — Signature — Date: Month 08 Day 27 Year 86

IN ILLINOIS: 217 / 782-3637 *24 HOUR EMERGENCY AND SPILL ASSISTANCE NUMBERS* OUTSIDE ILLINOIS: 800 / 424-8802 or 202 / 426-2675

DISTRIBUTION: PART - 1 GENERATOR PART - 2 IEPA PART - 3 FACILITY PART - 4 TRANSPORTER PART - 5 IEPA PART - 6 GENERATOR

GENERATOR COPY – PART 1 - DO NOT REMOVE PART 1 FROM SET UNTIL COMPLETED.

Agency is authorized to require, pursuant to Illinois Revised Statutes, 1983, Chapter 111½ Section 21, that this information be submitted to the Agency. Failure to provide the information may result in a civil penalty against the owner or operator of not to exceed $25,000 per day of violation. Falsification of this information may result in a fine of up to $10,000 per day of violation and imprisonment of up to 5 years. This form has been approved by the Forms Management Officer.

2200 CHURCHILL ROAD, SPRINGFIELD, ILLINOIS 62706 (217) 782-6761

LPC 62 8/81

Please print or type (Form designed for use on elite (12-pitch) typewriter.) **EPA Form 8700-22 (...4)** Form Approved. OMB No. 2000-0404 Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. I L D 0 0 2 2 9 3 1 2 4 Manifest Document No. 00013

2. Page 1 of 1

Information in the shaded areas is not required by Federal law, but is required by Illinois law.

3. Generator's Name and Mailing Address
Croda Inks Corporation
7777 N. Merrimac Avenue Niles, IL 60648-3490

A. Illinois Manifest Document Number L 147742

4. Generator's Phone (312) 967-7575

B. Illinois Generator's ID 0 3 1 2 0 1 5 0 1 1

5. Transporter 1 Company Name: Set Liquid Waste
6. US EPA ID Number: I L D 0 0 0 8 1 0 5 4 9

C. Illinois Transporter's ID 0 0 4 9

D. (312) 537-9221 Transporter's Phone

7. Transporter 2 Company Name
8. US EPA ID Number

E. Illinois Transporter's ID

F. ( ) Transporter's Phone

9. Designated Facility Name and Site Address
Chem-Clear Inc.
11800 S. Stony Island
Chicago, IL 60617
10. US EPA ID Number: I L D 0 0 0 6 0 8 4 7 1

G. Illinois Facility's ID 0 3 1 6 0 0 0 0 5 1

H. Facility's Phone (312) 646-6202

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Hazardous Waste Liquid N. O. S. ORM-E NA 9189	X	0 0 1	T T	2 0 0 0	1	EPA HW Number K 0 8 6 Authorization Number 0 0 0 0 2 0
b.							EPA HW Number Authorization Number
c.							EPA HW Number Authorization Number
d.							EPA HW Number Authorization Number

J. Additional Descriptions for Materials Listed Above.

K. Handling Codes for Wastes Listed Above In Item #14
1 = Gallons 2 = Cubic Yards

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, and Illinois regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

GENERATOR

Printed/Typed Name: SEVERINO PARNAS, JR. Signature: [signature] Date: Month 06 Day 27 Year 86

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: KEN SEBESTA Signature: [signature] Date: Month 06 Day 27 Year 86

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: Signature: Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.
Printed/Typed Name: T. HANKOSKY Signature: [signature] Date: Month 06 Day 27 Year 86

IN ILLINOIS: 217 / 782-3637 *24 HOUR EMERGENCY AND SPILL ASSISTANCE NUMBERS* OUTSIDE ILLINOIS: 800 / 424-8802 or 202 / 426-26

DISTRIBUTION: PART - 1 GENERATOR PART - 2 EPA PART - 3 FACILITY PART - 4 TRANSPORTER PART - 5 EPA PART - 6 GENERATOR

REV. #6

GENERATOR COPY — PART 1 - DO NOT REMOVE PART 1 FROM SET UNTIL COMPLETED.

This Agency is authorized to require, pursuant to Illinois Revised Statutes, 1983, Chapter 111½ Section 21, that this information be submitted to the Agency. Failure to provide the information may result in a civil penalty against the owner or operator of not to exceed $25,000 per day of violation. Falsification of this information may result in a fine up to $50,000 per day of violation and imprisonment up to 5 years. This form has been approved by the Forms Management

2200 CHURCHILL ROAD, SPRINGFIELD, ILLINOIS 62706 (217) 782-6761

LPC 62 8/81

Please print or type (Form designed for use ... lle (12-pitch) typewriter.) **EPA Form 8700-22** 4) Form Approved. OMB No. 2000-0404 Expires 7-31-8

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. I L D 0 0 2 2 9 3 1 2 4 — Manifest Document No. 0 0 1 1

2. Page 1 of 1

Information in the shaded areas is not required by Federal law, but is required by Illinois law

3. Generator's Name and Mailing Address
Croda Inks Corporation
7777 N. Merrimac Avenue Niles, IL 60648-3490

4. Generator's Phone (312) 967-7575

A. Illinois Manifest Document Number IL 147 3744

B. Illinois Generator's ID 0 3 1 2 0 1 5 0 1 1

5. Transporter 1 Company Name: Set Liquid Waste
6. US EPA ID Number: I L D 0 0 0 8 1 0 5 4 9

C. Illinois Transporter's ID 0 0 4 9

D. (312) 537-9221 Transporter's Phone

7. Transporter 2 Company Name
8. US EPA ID Number

E. Illinois Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Chem-Clear Inc.
11800 S. Stony Island
Chicago, IL 60617

10. US EPA ID Number: I L D 0 0 0 6 0 8 4 7 1

G. Illinois Facility's ID 0 3 1 6 0 0 0 0 5 1

H. Facility's Phone (312) 646-6202

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Hazardous Waste Liquid N. O. S. ORM-E NA 9189	X	0 0 1	T T	1500	1 G	EPA HW Number K 0 8 6 Authorization Number 0 0 0 0 0 2 0
b.							EPA HW Number Authorization Number
c.							EPA HW Number Authorization Number
d.							EPA HW Number Authorization Number

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above In Item #14
1 = Gallons 2 = Cubic Yards

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, and Illinois regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

GENERATOR

Printed/Typed Name: DENNIS PELKA — Signature — Date: Month 12 Day 10 Year 8

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: George Rovel — Signature — Date: Month 12 Day 10 Year 8

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.

Printed/Typed Name: Robert Simon — Signature — Date: Month 12 Day 12 Year 8

IN ILLINOIS: 217 / 782-3637 *24 HOUR EMERGENCY AND SPILL ASSISTANCE NUMBERS* OUTSIDE ILLINOIS: 800 / 424-8802 or 202 / 426-26

DISTRIBUTION: PART - 1 GENERATOR PART - 2 IEPA PART - 3 FACILITY PART - 4 TRANSPORTER PART - 5 IEPA PART - 6 GENERATOR

REV. #6

GENERATOR COPY – PART 1 - DO NOT REMOVE PART 1 FROM SET UNTIL COMPLETED.

This Agency is authorized to require, pursuant to Illinois Revised Statutes, 1983, Chapter 111½ Section 21, that this information be submitted to the Agency. Failure to provide the information may result in a civil penalty against the or or operator of not to exceed $25,000 per day of violation. Falsification of this information may result in a fine up to $50,000 per day of violation and imprisonment up to 5 years. This form has been approved by the Forms Mana

2200 CHURCHILL ROAD, SPRINGFIELD, ILLINOIS 62706 (217) 782-6761

LPC 62 8/81

Please print or type. (Form designed for use on elite 12-pitch) typewriter.) **EPA Form 8700-22 (3-** Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. I L D 0 0 2 2 9 3 1 2 4 — Manifest Document No. 0 0 1 0

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law, but is required by Illinois law.

3. Generator's Name and Mailing Address
Croda Inks Corporation
7777 N. Merrimac Avenue Niles, IL 60648-3490

A. Illinois Manifest Document Number IL 1277159

B. Illinois Generator's ID 0 3 1 2 0 1 5 0 1 1

4. Generator's Phone (312) 967-7575

5. Transporter 1 Company Name: Set Liquid Waste

6. US EPA ID Number: I L D 0 0 0 8 1 0 5 4 9

C. Illinois Tranporter's ID 0 0 4 9

D. (312) 537-9221 Transporter's Phone

7. Transporter 2 Company Name

8. US EPA ID Number

E. Illinois Transporter's ID

F. ( ) Transporter's Phone

9. Designated Facility Name and Site Address
Chem-Clear Inc.
11800 S. Stony Island
Chicago, IL 60617

10. US EPA ID Number: I L D 0 0 0 6 0 8 4 7 1

G. Illinois Facility's ID 0 3 1 6 0 0 0 0 5 1

H. Facility's Phone (312) 646-6202

GENERATOR

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	L Waste No.
a. Hazardous Waste Liquid N. O. S. ORM-E NA 9189	X	0 0 1	T T	2 0 0 0	1 G	EPA HW Number K 0 8 6; Authorization Number 0 0 0 0 2 0
b.						EPA HW Number; Authorization Number
c.						EPA HW Number; Authorization Number
d.						EPA HW Number; Authorization Number

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above
In Item #14: 1 = Gallons
2 = Cubic Yards

15. Special Handling Instructions and Additional Information
In addition I have a waste minimization program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me, which minimizes the present and future threat to human health and environment.

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations, and Illinois regulations.

Printed/Typed Name	Signature	Date (Month Day Year)
SEVERINO PARINAS	Severino Parinas	10 3 85

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Harry Swanson	Harry Swanson	10 3 85

18. Transporter 2 Acknowledgement or Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)
L. BELINSKY	L. Belinsky	10 3 85

IN ILLINOIS: 217 / 782-3637 — 24 HOUR EMERGENCY AND SPILL ASSISTANCE NUMBERS* — OUTSIDE ILLINOIS: 800 / 424-8802 or 202 / 426-2675

DISTRIBUTION: PART - 1 GENERATOR ~~PART - 2 IEPA~~ PART - 3 FACILITY PART - 4 TRANSPORTER PART - 5 ~~EPA~~ PART - 6 GENERATOR

5

GENERATOR COPY – PART 1- DO NOT REMOVE PART 1 FROM SET UNTIL COMPLETED.

This Agency is authorized to require, pursuant to Illinois Revised Statutes, 1983, Chapter 111½ Section 21, that this information be submitted to the Agency. Failure to provide the information may result in a civil penalty against the owner or operator of not to exceed $25,000 per day of violation. Falsification of this information may result in a fine up to $50,000 per day of violation and imprisonment up to 5 years. This form has been approved by the Forms Management

2200 CHURCHILL ROAD, SPRINGFIELD, ILLINOIS 62706 (217) 782-3397

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) **EPA Form 8700-22** 4) Form Approved. OMB No. 2000-0404 Expires 7-31-8[illegible]

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: I L D 0 0 2 2 9 3 1 2 4 — Manifest Document No.: 5009

2. Page 1 of 1

Information in the shaded areas is not required by Federal law, but is required by Illinois law.

3. Generator's Name and Mailing Address
Croda Inks Corporation
7777 N. Merrimac Ave.
Niles, IL 60648-3490
4. Generator's Phone (312) 967-7575

A. Illinois Manifest Document Number: IL 1277151

B. Illinois Generator's ID: 0 3 1 2 0 1 5 0 1 1

5. Transporter 1 Company Name: Set Liquid Waste
6. US EPA ID Number: I L D 0 0 0 8 1 0 5 4 9

C. Illinois Tranporter's ID: 0 0 1 4 9

D. (312) 537-9221 Transporter's Phone

7. Transporter 2 Company Name
8. US EPA ID Number

E. Illinois Transporter's ID

F. ( ) Transporter's Phone

9. Designated Facility Name and Site Address
Chem-Clear Inc.
11800 S. Stony Island
Chicago, IL 60617
10. US EPA ID Number: I L D 0 0 0 6 0 8 4 7 1

G. Illinois Facility's ID: 0 3 1 6 0 0 0 0 5 1

H. Facility's Phone (312) 646-6202

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	L Waste No.
a.	Hazardous Waste Liquid N.O.S. ORM-E NA9189	X	001	TT	2990	G	EPA HW Number: K018 / Authorization Number: 0 0 0 0 2
b.							EPA HW Number / Authorization Number
c.							EPA HW Number / Authorization Number
d.							EPA HW Number / Authorization Number

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above
In Item #14: 1 = Gallons
2 = Cubic Yards

15. Special Handling Instructions and Additional Information

Contains lead and chromium

Control any spill

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations, and Illinois regulations.

Printed/Typed Name	Signature	Date (Month Day Ye)
S. S. Parinas, Jr.		06126

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Ye)
JOE FOLKERTS		06126

18. Transporter 2 Acknowledgement or Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Ye)

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Ye)
L. Belinsky		61268

IN ILLINOIS: 217 / 782-3637 — 24 HOUR EMERGENCY AND SPILL ASSISTANCE NUMBERS* — OUTSIDE ILLINOIS: 800 / 424-8802 or 202 / 426-26

DISTRIBUTION: PART - 1 GENERATOR PART - 2 IEPA PART - 3 FACILITY PART - 4 TRANSPORTER PART - 5 IEPA PART - 6 GENERATOR

EV. 5

GENERATOR COPY - PART 1- DO NOT REMOVE PART 1 FROM SET UNTIL COMPLETED.

2200 CHURCHILL ROAD, SPRINGFIELD, ILLINOIS 62794-9276

LPC 62 8/81

Please print or type. (Form designed for use on 12-pitch) typewriter.) EPA Form 8700-22 (3) Form Approved. OMB No. 2000-0404 Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. I L D 0 0 2 2 9 3 1 2 4 | Manifest Document No. 0 0 0 8

2. Page 1 of 1 | Information in the shaded areas is not required by Federal law, but is required by Illinois law.

3. Generator's Name and Mailing Address
CRODA INKS CORPORATION
7777 North Merrimac Avenue, Niles, IL 60648-3490

4. Generator's Phone (312) 967-7575

A. Illinois Manifest Document Number: IL 111 4938

B. Illinois Generator's ID: 0 3 1 2 0 1 5 0 1 1

5. Transporter 1 Company Name: Set Liquid Waste
6. US EPA ID Number: I L D 0 0 0 9 1 0 5 4 9
C. Illinois Tranporter's ID: 0 0 4 9
D. (312) 537-9221 Transporter's Phone

7. Transporter 2 Company Name
8. US EPA ID Number
E. Illinois Transporter's ID
F. ( ) Transporter's Phone

9. Designated Facility Name and Site Address
Chem-Clear, Inc.
11800 S. Stoney Island
Chicago, IL 60617
10. US EPA ID Number: I L D 0 0 0 6 0 8 4 7 1
G. Illinois Facility's ID: 0 3 3 6 0 0 0 0 5 1
H. Facility's Phone: (312) 646-6202

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste Liquid N. O. S. ORM-E NA 9189	X	0 0 1	T T	02000	G	EPA HW Number K 0 8 6; Authorization Number 0 0 0 0 2 0
b.						EPA HW Number; Authorization Number
c.						EPA HW Number; Authorization Number
d.						EPA HW Number; Authorization Number

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above: D008

15. Special Handling Instructions and Additional Information
INK SLUDGE
Contains lead and chromium
Control any spill

1 = gallon
9 = gallon

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations, and Illinois regulations.

Printed/Typed Name	Signature	Date (Month Day Year)
S. S. Parinas, Jr. N. PONTARELLI	Nick Pontarelli	03 12 91

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
DAVE NICHOLAS		03 12 91

18. Transporter 2 Acknowledgement or Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)
L. Belinsky	L. Belinsky	3 29 91

IN ILLINOIS: 217 / 782-3637 *24 HOUR EMERGENCY AND SPILL ASSISTANCE NUMBERS* OUTSIDE ILLINOIS: 800 / 424-8802 or 202 / 426-267

DISTRIBUTION: PART - 1 GENERATOR PART - 2 IEPA PART - 3 FACILITY PART - 4 TRANSPORTER PART - 5 IEPA PART - 6 GENERATOR

V.# 5

GENERATOR COPY - PART 1- DO NOT REMOVE PART 1 FROM SET UNTIL COMPLETED.

2200 CHURCHILL ROAD, SPRINGFIELD, ILLINOIS 62706 (217) 782-6761

Please print or type. (Form designed for use on (12-pitch) typewriter.) **EPA Form 8700-22 (3)** Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. I L D 0 0 2 2 9 3 1 2 4 Manifest Document No. 0 0 0 8

2. Page 1 of 1

Information in the shaded areas is not required by Federal law, but is required by Illinois law.

3. Generator's Name and Mailing Address
Croda Inks Corporation
7777 N. Merrimac Ave.
Niles, IL 60648-3490

A. Illinois Manifest Document Number IL 111494 1

B. Illinois Generator's ID 0 3 1 2 0 1 5 0 1 1

4. Generator's Phone (312) 967-7575

5. Transporter 1 Company Name
Set Liquid Waste

6. US EPA ID Number I L D 0 0 0 8 1 0 5 4 9

C. Illinois Tranporter's ID 0 1 0 4 9

D. (312) 537-9221 Transporter's Phone

7. Transporter 2 Company Name

8. US EPA ID Number

E. Illinois Transporter's ID

F. ( ) Transporter's Phone

9. Designated Facility Name and Site Address
Chem-Clear Inc.
11800 S. Stony Island
Chicago, IL 60617

10. US EPA ID Number I L D 0 0 0 6 0 8 4 7 1

G. Illinois Facility's ID 0 3 1 6 0 0 0 0 5 1

H. Facility's Phone (312) 646-6202

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Hazardous Waste Liquid N.O.S ORM-E NA 9189	X	0 0 1	TT	0 2 1 4 5	1	EPA HW Number K 0 8 6 Authorization Number 0 0 0 0 2 0
b.							EPA HW Number Authorization Number
c.							EPA HW Number Authorization Number
d.							EPA HW Number Authorization Number

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Contains lead and chromium
Control any spill

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations, and Illinois regulations.

Printed/Typed Name	Signature	Date (Month Day Year)
S. S. Parinas, Jr.	S. S. Parinas Jr.	12 12 84

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Harry Swanson	Harry Swanson	12 12 84

18. Transporter 2 Acknowledgement or Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)
L. Belinsky	L. Belinsky	12 12 84

IN ILLINOIS: 217 / 782-3637 **24 HOUR EMERGENCY AND SPILL ASSISTANCE NUMBERS** OUTSIDE ILLINOIS: 800 / 424-8802 or 202 / 426-2675

DISTRIBUTION: PART - 1 GENERATOR PART - 2 IEPA PART - 3 FACILITY PART - 4 TRANSPORTER PART - 5 IEPA PART - 6 GENERATOR

GENERATOR COPY – PART 1- DO NOT REMOVE PART 1 FROM SET UNTIL COMPLETED.

This Agency is authorized to require, pursuant to Illinois Revised Statutes, 1983, Chapter 111½ Section 21, that this information be submitted to the Agency. Failure to provide the information may result in a civil penalty against the owner or operator of not to exceed $25,000 per day of violation. Falsification of this information may result in a fine up to $50,000 per day of violation and imprisonment up to 5 years. This form has been approved by the Forms Management Center.

LPC 62 8/81

Please print or type. (Form designed for use on elite (12 pitch) typewriter.) EPA Form 8700-22 (3 Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. I L D 0 0 2 2 9 3 1 2 4 | Manifest Document No. 0 0 0 7

2. Page 1 of 1 | Information in the shaded areas is not required by Federal law, but is required by Illinois law.

3. Generator's Name and Mailing Address
Croda Inks Corporation
7777 N. Merrimac Ave.
Niles, IL 60648-3490

4. Generator's Phone (312) 967-7575

A. Illinois Manifest Document Number IL 1114937

B. Illinois Generator's ID 0 3 1 2 0 1 5 0 1 1

5. Transporter 1 Company Name: Set Liquid Waste

6. US EPA ID Number: I L D 0 0 0 8 1 0 5 4 9

C. Illinois Tranporter's ID 0049

D. (312) 537-9221 Transporter's Phone

7. Transporter 2 Company Name

8. US EPA ID Number

E. Illinois Transporter's ID

F. ( ) Transporter's Phone

9. Designated Facility Name and Site Address
Chem-Clear Inc.
11800 S. Stony Island
Chicago, Il 60617

10. US EPA ID Number: I L D 0 0 0 6 0 8 4 7 1

G. Illinois Facility's ID 0 3 1 6 0 0 0 0 5 1

H. Facility's Phone (312) 646-6202

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Hazardous Waste Liquid N.O.S. ORM-E NA 9189	X	001	TT	2000	G	EPA HW Number K018 16 / Authorization Number 010101210
b.							EPA HW Number / Authorization Number
c.							EPA HW Number / Authorization Number
d.							EPA HW Number / Authorization Number

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Contains lead and chromium
Control any spill

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations, and Illinois regulations.

Printed/Typed Name: D. R. Roeing | Signature: D. R. Roeing | Date Month Day Year: 10 02 84

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: GORDON R BLUE | Signature: Gordon R Blue | Date Month Day Year: 10 02 84

18. Transporter 2 Acknowledgement or Receipt of Materials

Printed/Typed Name | Signature | Date Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: L. BELINSKY | Signature: L. Belinsky | Date Month Day Year: 10 12 84

IN ILLINOIS: 217 / 782-3637 *24 HOUR EMERGENCY AND SPILL ASSISTANCE NUMBERS* OUTSIDE ILLINOIS: 800 / 424-8802 or 202 / 426-2675

DISTRIBUTION: PART - 1 GENERATOR PART - 2 IEPA PART - 3 FACILITY PART - 4 TRANSPORTER PART - 5 IEPA PART - 6 GENERATOR

GENERATOR COPY – PART 1- DO NOT REMOVE PART 1 FROM SET UNTIL COMPLETED.

Agency is authorized to require, pursuant to Illinois Revised Statutes, 1983, Chapter 111½ Section 21, that this information be submitted to the Agency. Failure to provide the information may result in a civil penalty against the owner operator of not to exceed $25,000 per day of violation. Falsification of this information may result in a fine up to $50,000 per day of violation and imprisonment up to 5 years. This form has been approved by the Forms Management ter.

TO BE COMPLETED BY WASTE GENERATOR

STATE OF ILLINOIS

ENVIRONMENTAL PROTECTION AGE
DIVISION OF LAND POLLUTION CONTROL
SPECIAL WASTE HAULING MANIFEST
WASTE GENERATOR

HAZARDOUS U11550
87-003

Authorization Number 8106 25
NON-HAZARDOUS
0312010011
14 Generator Number

CRODA INKS CORP. (Company Name) | 7777 N. MERRIMAC AVE. (Address)

NILES (City) | ILL. (State) | 60648 (Zip)

WASTE HAULER(S)

(1) WASTE WATCHER (Hauler Name) | 6305 OGDEN (Hauler Address) | S.W.H. Registration Number 0467001 (25)

(2) N/A (Hauler Name) | N/A (Hauler Address) | S.W.H. Registration Number (32)

DESTINATION – DISPOSAL STORAGE OR TREATMENT SITE

CHICAGO (Facility Name) | CID IL (Address) | 03160030 (39 Site Number)

(City) | (State) | (Zip)

TO BE COMPLETED BY WASTE GENERATOR

WASTE NAME: WATER WASHES & SLUDGE | WASTE PHASE: LIQUID (Liquid, Gaseous, Solid)

THE SPECIAL WASTE BEING TRANSPORTED UNDER THIS MANIFEST IS OF THE DOT HAZARD CLASSIFICATION INDICATED IMMEDIATELY BELOW:

SHIPPING DESCRIPTION: N/A

HAZARD CLASS: N/A

THIS IS TO CERTIFY THAT THE ABOVE NAMED SPECIAL WASTE IS PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED, AND LABELED AND IS IN PROPER CONDITION FOR TRANSPORTATION IN ACCORDANCE WITH THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION.

I HEREBY AGREE TO AND CERTIFY THE ABOVE WRITTEN INFORMATION

DATE: 3-11-82 | William Groening (Authorized Signature)

WASTE HAULER*

QUANTITY OF WASTE RECEIVED: 1100 (47–52) | (1 GALLONS / 2 CU. YDS.) (Circle One) 1 (53)

METHOD OF SHIPMENT (Circle One) DRUMS (TANK TRUCK) OPEN TRUCK OTHER _____ (Specify)

I HEREBY CERTIFY THAT THE ABOVE DESCRIBED SPECIAL WASTE AND QUANTITY HAS BEEN ACCEPTED IN PROPER CONDITION FOR TRANSPORT AND I ACKNOWLEDGE THE DESTINATION INDICATED.

(1) _____ (Authorized Signature) | DATE 3/11/82 (54)

(2) _____ (Authorized Signature) | DATE ___/___/___

DISPOSAL, STORAGE, OR TREATMENT FACILITY*

I HEREBY CERTIFY THAT THE ABOVE DESCRIBED SPECIAL WASTE AND INDICATED QUANTITY HAS BEEN ACCEPTED:

Carl Nelson (Authorized Signature) | DATE: 3/11/82 (60)

MENTS OR SPECIAL INSTRUCTIONS: _____

IN ILLINOIS 217 / 782 3637 | *24 HOUR EMERGENCY AND SPILL ASSISTANCE NUMBERS* | OUTSIDE ILLINOIS 800 / 424

DISTRIBUTION: PART 1 GENERATOR | PART 2 IEPA | PART 3 SITE | PART 4 HAULER | PART 5 IEPA | PART 6 GENERATOR

GENERATOR COPY – PART 1 - DO NOT REMOVE PART 1 FROM SET UNTIL COMPLETED.

TO BE COMPLETED BY WASTE GENERATOR

STATE OF ILLINOIS

ENVIRONMENTAL PROTECTION AGE
DIVISION OF LAND POLLUTION CONTROL
SPECIAL WASTE HAULING MANIFEST
WASTE GENERATOR

U1133
87-004

Authorization Number 922205

CRODA INKS CORP. (Company Name)
7777 NORTH MERRIMAC AVE (Address)
0312010011 (14) Generator Number

NILES (City) IL (State) 60648 (Zip)

WASTE HAULER(S)

(1) BROWNING - FERRIS (Hauler Name) MELROSE PARK IL 60160 (Hauler Address) S.W.H. Registration Number 0107 (25)

(2) _____ (Hauler Name) _____ (Hauler Address) S.W.H. Registration Number _____ (32)

DESTINATION -- DISPOSAL STORAGE OR TREATMENT SITE

CHEM - CLEAR (Facility Name) CHICAGO IL (Address) 03160051 (39) Site Number

_____ (City) _____ (State) _____ (Zip)

TO BE COMPLETED BY WASTE GENERATOR

WASTE NAME: WATER WASHES AND SLUDGE

WASTE PHASE: LIQUID (Liquid, Gaseous, Solid)

NON - HAZARDOUS

THE SPECIAL WASTE BEING TRANSPORTED UNDER THIS MANIFEST IS OF THE DOT HAZARD CLASSIFICATION INDICATED IMMEDIATELY BELOW:

SHIPPING DESCRIPTION: N/A

HAZARD CLASS: N/A

THIS IS TO CERTIFY THAT THE ABOVE NAMED SPECIAL WASTE IS PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED, AND LABELED AND IS IN PROPER CONDITION FOR TRANSPORTATION IN ACCORDANCE WITH THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION.

I HEREBY AGREE TO AND CERTIFY THE ABOVE WRITTEN INFORMATION

DATE: _____ _____ (Authorized Signature)

WASTE HAULER*

QUANTITY OF WASTE RECEIVED: _____ (47-52) GALLONS / 2** CU. YDS. (Circle One) 1 (53)

METHOD OF SHIPMENT (Circle One) DRUMS TANK TRUCK OPEN TRUCK OTHER _____ (Specify)

I HEREBY CERTIFY THAT THE ABOVE DESCRIBED SPECIAL WASTE AND QUANTITY HAS BEEN ACCEPTED IN PROPER CONDITION FOR TRANSPORT AND I ACKNOWLEDGE THE DESTINATION INDICATED:

(1) _____ (Authorized Signature) DATE: __/__/__ (54)

(2) _____ (Authorized Signature) DATE: __/__/__

DISPOSAL, STORAGE, OR TREATMENT FACILITY*

I HEREBY CERTIFY THAT THE ABOVE DESCRIBED SPECIAL WASTE AND INDICATED QUANTITY HAS BEEN ACCEPTED:

_____ (Authorized Signature) DATE: __/__/__ (60)

COMMENTS OR SPECIAL INSTRUCTIONS: _____

IN ILLINOIS 217 / 782-3637 *24 HOUR EMERGENCY AND SPILL ASSISTANCE NUMBERS* OUTSIDE ILLINOIS 800 / 424

DISTRIBUTION: PART 1 GENERATOR PART 2 IEPA PART 3 SITE PART 4 HAULER PART 5 IEPA PART 6 GENERATOR

GENERATOR COPY - PART 6

APPENDIX D

SOIL ANALYTICAL RESULTS FROM BASE OF UST EXCAVATION

TENCO LABORATORIES

BPM INDUSTRIES
1150 Junction Avenue - Schererville, Indiana 46375
1-219-322-2560 • 1-800-428-3311

REPORT TO:
Jean Millard
Chem Clear
1600 167th St
Calumet City IL 60409
EPA METHOD

Date: 12/21/88
Recd: 12/19/88
WO #: 21-0718

Laboratory Smp ID No.:	2987-9	2988-9	2989-9				
DESCRIPTION: ——> nl otherwise noted; sults in parts per llion - ppm] PARAMETERS:	CC # 2 South 12/14/88	CC # 3 Center 12/14/88	CC # 1 North End 12/14/88				Detection Limit
etone	ND	ND	ND				1 mg/kg
nzene	ND	ND	ND				1 mg/kg
Butyl Alcohol	ND	ND	ND				1 mg/kg
rbon Disulfide	ND	ND	ND				1 mg/kg
rbon Tetrachloride	ND	ND	ND				1 mg/kg
lorobenzene	ND	ND	ND				1 mg/kg
esols	ND	ND	ND				1 mg/kg
esylic Acid	ND	ND	ND				1 mg/kg
e	ND	ND	ND				1 mg/kg
Dichloro Benzene	ND	ND	ND				1 mg/kg
hoxy Ethanol	ND	ND	ND				1 mg/kg
hyl Acetate	ND	ND	ND				1 mg/kg
hyl Benzene	ND	ND	ND				1 mg/kg
hyl Ether	ND	ND	ND				1 mg/kg
obutanol	ND	ND	ND				1 mg/kg
thanol	ND	ND	ND				1 mg/kg
thylene Chloride	ND	ND	ND				1 mg/kg

ND=Not Detected

Certified by:

TENCO LABORATORIES

BPM INDUSTRIES
1150 Junction Avenue - Schererville, Indiana 46375
1-219-322-2560 • 1-800-428-3311

REPORT TO:
Jean Millard
Chem Clear
1600 167th St
Calumet City IL 60409

Date: 12/21/88
Recd: 12/19/88
WO #: 21-0718

EPA METHOD

Laboratory Smp ID No.:	2987-9	2988-9	2989-9				
DESCRIPTION: ——> (Less otherwise noted; results in parts per million - ppm) PARAMETERS: ↓	CC # 2 South towards parking lot 12/14/88	CC # 3 Center 12/14/88	CC # 1 North End 12/14/88				DETECTION LIMIT
Methyl Ethyl Ketone	ND	ND	ND				1 mg/kg
Methyl Isobutly Ketone	ND	1.79	3.34				1 mg/kg
Nitrobenzene	ND	ND	ND				1 mg/kg
2-Nitro Propane	ND	ND	ND				1 mg/kg
Pyridine	ND	ND	ND				1 mg/kg
Tetrachloroethylene	ND	ND	ND				1 mg/kg
Toluene	289.	3.52	35.1				1 mg/kg
Trichloroethylene	ND	ND	ND				1 mg/kg
1.1-Trichloroethane	ND	ND	ND				1 mg/kg
1.1.2-Trichloroethane	ND	ND	ND				1 mg/kg
1.1.1-Trichloro-1.2.2-Trifluoroethane	ND	ND	ND				1 mg/kg
Trichlorofluoroethane:	ND	ND	ND				1 mg/kg
Xylene	2.08	ND	6.68				1 mg/kg

ND=Not Detected

Certified by:

TENCO LABORATORIES

BPM INDUSTRIES
1150 Junction Avenue - Schererville, Indiana 46375
1-219-322-2560 ● 1-800-428-3311

REPORT TO:

Tom Simpson
Chem Clear
1600 167th St.
Calumet City, IL 60409

Date: 12/30/88
Recd: 12/19/88
WO #: 21-0718

Laboratory Smp ID No.:	2987-9	2988-9	2989-9
DESCRIPTION: ——> [Unless otherwise noted; results in parts per million - ppm] PARAMETERS: ↓	CC #2 South 12/14/88	CC #3 Center 12/14/88	CC #1 North 12/13/88
Total Halogen	91	5	118
Lead	13.40	5.85	25.40
Chromium	8.60	7.78	7.88
EP TOXICITY Lead	<0.009	<0.009	<0.009
Chromium	0.011	0.010	0.011

Certified by:

TENCO LABORATORIES DIVN. OF THX, INC.

1150 Junction Avenue - Schererville, Indiana 46375
1-219-322-2560 ● 1-800-428-3311

REPORT TO:

Cathy Ortiz
Chem Clear
11800 S. Stony Island Avenue
Chicago, IL 60617

Date: 1/17/89
Recd: 1/04/89
WO #: 21-0847

Kroda Ink

Laboratory Smp ID No.:	3374-9						
DESCRIPTION: ——> (unless otherwise noted; su in parts per illion - ppm) PARAMETERS:	Composite Soil #1 Down - 84" #2 Down - 42" #3 Down - 60" #4 Down - 48" #5 Down - 48" #6 Down - 54"						maximum concentration (metals only)
	AS RECEIVED	TOTAL	REACTIVE		TOTAL	EP TOXICITY	
FLASHPOINT-(140°F)	>200°F			SILVER		<0.002	5.0 ppm
Percent Acidity				ARSENIC		<0.01	5.0 ppm
Percent Alkalinity				BARIUM		0.534	100.0 ppm
pH (2-12.5**)	6.3			CADMIUM		0.038	1.0 ppm
Percent Total Solids	81.11			CHROMIUM***		<0.004	5.0 ppm
SULFIDE	<0.4		<0.4	MERCURY		0.00025	.2 ppm
CYANIDE	1.531		<1.5	LEAD		0.189	5.0 ppm
PHENOL	0.239			SELENIUM		<0.01	1.0 ppm
				*** Total			

** Allowable Range

certified by:

TENCO LABORATORIES DIVN. OF THX, INC.

1150 Junction Avenue - Schererville, Indiana 46375
1-219-322-2560 ● 1-800-428-3311

REPORT TO:
Gary Freeman
Chem Clear
1600 167th St.
Calumet City, IL 60409

Date: 10/13/87
Recd: 9/24/87
WO #: 19-1472

Laboratory Smp ID No.:	6073-7 Croda - Soil Sample						
SCRIPTION: —> (less otherwise noted; ults in parts per lion - ppm] PARAMETERS:	Croda Ink						maximum concentrations (metals only)
	AS RECEIVED	TOTAL	REACTIVE		TOTAL	EP TOXICITY	
LASHPOINT-(140°F)	>200°F			SILVER	24.4	<0.005	5.0 ppm
ercent Acidity				ARSENIC	<0.100	<0.010	5.0 ppm
ercent Alkalinity	0.56			BARIUM	9991.0	0.311	100.0 ppm
l (2-12.5**)	7.5			CADMIUM	156.0	0.300	1.0 ppm
ercent Total Solids	65.16			CHROMIUM***	11.6	0.021	5.0 ppm
UL FIDE	<0.05		<0.05	MERCURY	<0.010	0.0018	.2 ppm
ANIDE	19.606		<0.20	LEAD	8148.0	0.254	5.0 ppm
ENOL	1.68			SELENIUM	<0.100	<0.010	1.0 ppm
OC	2500						
TOX	<0.05						
OLOR	Green						
PECIFIC GRAVITY	1.091						
REE LIQUID	None Present						
CID/BASE OMPATABILITY	No Reaction						
				*** Total			

Allowable range

APPENDIX E

RCRA CHARACTERIZATION OF STOCKPILED SOIL FROM UST EXCAVATION

Quality Analytical Laboratories, Inc.
"Precision, Accuracy and Service"

Warzyn Engineers, Inc.
ATTN: James W. Wink
1 Pierce Place
Itasca, IL 60143

Job #:1-631
Date: 6/12/1989

Sampling Date: unknown
Analyses Date: 6/6-12/1989
Technique/Method: The samples were analyzed as per USEPA SW-846 methods 8010 and 8020

Identification: Two samples identified as:

Project Name: Croda Inks Corp
Project #: 40045.03
Location: Niles, IL

All results expressed in ug/kg (ppb)

Results: Soil Pile #1

Parameter	method detection Limit	Analysis
Chloromethane	5	BDL
Bromomethane	5	BDL
Vinyl Chloride	5	BDL
Chloroethane	5	BDL
Methylene Chloride	1	BDL
Trichlorofluoromethane	1	BDL
Acetone	75	BDL
Carbon Disulfide	1	BDL
Dibromomethane	1	BDL
Dichlorofluoromethane	1	BDL
Ethanol	25	BDL
Iodomethane	1	BDL
1,1-Dichloroethane	1	BDL
1,1-Dichloroethene	1	BDL
trans-1,2-Dichloroethene	1	BDL
Trichloromethane (Chloroform)	1	BDL
1,2-Dichloroethane	1	BDL
1,1,1-Trichloroethane	1	BDL
1,2,3-Trichloropropane	1	BDL
Vinyl Acetate	25	BDL
Tetrachloromethane(Carbon Tet)	1	BDL
Bromodichloromethane	1	BDL
1,2-Dichloropropane	1	BDL
Tribromomethane (Bromoform)	1	BDL
4-Methyl-2-pentanone (MIBK)	25	BDL
trans-1,3-Dichloropropene	1	BDL
2-Chlorovinyl Ether	1	BDL
Trichloroethene	1	BDL
Benzene	1	BDL
Dibromochloromethane	1	BDL
1,1,2-Trichloroehtane	1	BDL
cis-1,3-Dichloropropene	1	BDL

Parameter	method detection Limit	Analysis
trans-1,3-Dichloropropene	1	BDL
1,1,2,2-Tetrachloroethane	1	BDL
Tetrachloroethene	1	BDL
Methylbenzene (Toluene)	1	451
Ethyl Benzene	1	BDL
Xylenes (Total)	3	44
2-Hexanone	10	BDL
Acrolien	1	BDL
Acrylonitrile	1	BDL
1,4-Dichloro-2-butane	1	BDL
Ethyl Methacrylate	1	BDL
Chlorobenzene	1	BDL
2-Butanone (Methyl Ethyl Ketone)	50	BDL
Styrene	1	BDL

Note: Bromofluorobenzene present

Results: Soil Pile #2

Parameter	method detection Limit	Analysis
Chloromethane	5	BDL
Bromomethane	5	BDL
Vinyl Chloride	5	BDL
Chloroethane	5	BDL
Methylene Chloride	1	BDL
Trichlorofluoromethane	1	BDL
Acetone	75	BDL
Carbon Disulfide	1	BDL
Dibromomethane	1	BDL
Dichlorofluoromethane	1	BDL
Ethanol	25	BDL
Iodomethane	1	BDL
1,1-Dichloroethane	1	BDL
1,1-Dichloroethene	1	BDL
trans-1,2-Dichloroethene	1	BDL
Trichloromethane (Chloroform)	1	BDL
1,2-Dichloroethane	1	BDL
1,1,1-Trichloroethane	1	BDL
1,2,3-Trichloropropane	1	BDL
Vinyl Acetate	25	BDL
Tetrachloromethane(Carbon Tet)	1	BDL
Bromodichloromethane	1	BDL
1,2-Dichloropropane	1	BDL
Tribromomethane (Bromoform)	1	BDL
4-Methyl-2-pentanone (MIBK)	25	BDL
trans-1,3-Dichloropropene	1	BDL
2-Chlorovinyl Ether	1	BDL
Trichloroethene	1	BDL
Benzene	1	BDL

Parameter	method detection Limit	Analysis
Dibromochloromethane	1	BDL
1,1,2-Trichloroehtane	1	BDL
cis-1,3-Dichloropropene	1	BDL
trans-1,3-Dichloropropene	1	BDL
1,1,2,2-Tetrachloroethane	1	BDL
Tetrachloroethene	1	BDL
Methylbenzene (Toluene)	1	BDL
Ethyl Benzene	1	BDL
Xylenes (Total)	3	15
2-Hexanone	10	BDL
Acrolien	1	BDL
Acrylonitrile	1	BDL
1,4-Dichloro-2-butane	1	BDL
Ethyl Methacrylate	1	BDL
Chlorobenzene	1	BDL
2-Butanone (Methyl Ethyl Ketone)	50	BDL
Styrene	1	BDL

Note: Bromofluorobenzene present

(BDL = Below Detection Limit)

Respectfully Submitted,

William F. Eberhardt
Lab Director
Quality Analytical Labs, Inc.

Warzyn Engineers, Inc.
ATTN: James W. Wink
1 Pierce Place
Itasca, IL 60143

Job #:1-630
Date: 6/13/1989

Sampling Date: unknown
Analyses Date: 6/6-12/1989
Technique/Method: The samples were analyzed as per USEPA SW-846

Identification: Two samples identified as:

Project Name: Croda Inks Corp
Project #: 40045.03
Location: Niles, IL

Results: Soil Pile #1

	Total Metals	E.P. Toxicity Metals
Cu	NA	NA
Cd	NA	<1.0mg/l
Cr	NA	<1.0mg/l
Pb	NA	<1.0mg/l
Ag	NA	<1.0mg/l
Se	NA	<1.0mg/l
As	NA	<1.0mg/l
Hg	NA	<0.01mg/l
Zn	NA	NA
Ni	NA	NA
Fe	NA	NA
Ba	NA	<50.0mg/l

CN (Tot) ..... <1.0mg/kg
Sulfide (Tot) .. <1.0mg/kg
Chlorine ..... NA
Flashpoint ..... >140 degrees F (Pensky-Martens C.C.)
Paint Filter ... pass
Total Solids ... NA
pH 8.2

Results: Soil Pile #2

	Total Metals	E.P. Toxicity Metals
Cu	NA	NA
Cd	NA	<1.0mg/l
Cr	NA	<1.0mg/l
Pb	NA	<1.0mg/l
Ag	NA	<1.0mg/l
Se	NA	<1.0mg/l
As	NA	<1.0mg/l
Hg	NA	<0.01mg/l
Zn	NA	NA
Ni	NA	NA
Fe	NA	NA
Ba	NA	<50.0mg/l

CN (Tot) ..... <1.0mg/kg
Sulfide (Tot) .. <1.0mg/kg
Chlorine ..... NA
Flashpoint ..... >140 degrees F (Pensky-Martens C.C.)
Paint Filter ... pass
Total Solids ... NA
pH 8.4

NA = Not Applicable

Respectfully Submitted,

Maureen M. Gibbons

Maureen M. Gibbons
Lab Manager
Quality Analytical Labs, Inc.

PDC Laboratories, Inc.

4349 Southport Rd. • Peoria, IL 61615
309 675-2893

CLIENT Warzyn Engineering

DATE RECEIVED 06-28-89

DATE OF REPORT 06-29-89

SAMPLE DESCRIPTION Stockpile #1

P.O. NUMBER James Wink

LAB NUMBER 906558

LAB NUMBER	ANALYSIS	RESULTS
906558	Total Phenol	4.1 mg/kg
	EOX	<12 mg/kg

John R. LaPorte (STE)
Laboratory Manager
PDC Laboratories, Inc.

John R. Orsio (STE)
Quality Assurance Officer
PDC Laboratories, Inc.

APPENDIX F

CLOSURE CERTIFICATION DOCUMENTS

Attachment 5

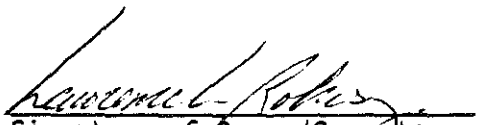
This statement is to be completed and attached to each of the 4 copies of the closure plan. At least one of the copies must contain original signatures.

Closure Plan
Certification Statement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

ILD002293124
USEPA ID Number

Croda Inks Croporation
Facility Name


Signature of Owner/Operator

Lawrence L. Rokosz
Director of Finance and Administration
Name and Title

October 5, 1989
Date

This statement is to be completed by both the responsible officer and by the registered professional engineer upon completion of closure. Submit three copies of this certification, including at least one copy with original signatures.

Closure Certification Statement

The hazardous waste management unit(s) at the facility described in this document has (have) been closed in accordance with the specifications in the approved closure plan. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If this is the closure of a unit which is subject to post-closure care requirements, the Owner/Operator hereby certifies that he has recorded the notation specified in 35 Ill. Adm. Code, Section 725.219(b)(1) as amended March 24, 1987.

USEPA ID Number	Facility Name
Signature of Owner/Operator	Name and Title
Signature of Registered P.E.	Name of Registered P.E. and Illinois Registration Number
Date	(P.E. Seal)

APPENDIX G

ISWS WELL LOGS

...OF ENVIRONMENTAL ... N, S... ST
...01. DO NOT DETACH GEOLOGICAL/... ER
...E PROPER ...ELL LOCATI...N.

GEOLOGICAL AND WATER SURVEYS WELL RECORD

Completed 6-19-73

10. Property owner Richard Weise Well No. _____
Address 6120 Lincoln Ave. Morton Grove.
Driller DuPage Pump, Inc License No. 92-147
11. Permit No. 22751 Date 4-20-73
12. Water from Limestone (Formation) 13. County Cook
at depth _____ to _____ ft.
14. Screen: Diam. _____ in.
Length: _____ ft. Slot _____
Sec. 19
Twp. 41 N
Rge. 13 E
Elev. _____

15. Casing and Liner Pipe

Diam. (in.)	Kind and Weight	From (Ft.)	To (Ft.)
5	Steel 14.98	0	112

SHOW LOCATION IN SECTION PLAT
Lot 10 Schmitz
Morton Grove
(Permit)

16. Size Hole below casing: 5 in.
17. Static level _____ ft. below casing top which is 8 ft. above ground level. Pumping level 110 ft. when pumping at 10 gpm for 2 hours.

18. FORMATIONS PASSED THROUGH	THICKNESS	DEPTH OF BOTTOM
Drift	112	112
Limestone	63	175

(CONTINUE ON SEPARATE SHEET IF NECESSARY)

SIGNED Owner Yeoman DATE 6-19-73

4386

COOK

19-41N-13E

Town Morton Grove
Company Gray Well Drilling Co.
Name Poehlman Bros.
Authority
Elevation 629' (Ce. Off.)
Location Thwaites
Date Drilled
Confidential Aug. 1, 1926-April 15, 1927

No.	Strata	Thickness Feet	In.	Depth Feet	In.
	DRIFT				
	Drift, no record	65		65	
	NIAGARA				
	Dolomite, light gray	10		75	
	Dolomite, black, bituminous, light gray, and pink; shale, blue, dolomitic, all broken	30		105	
	No sample	20		125	
	Like 75-105; shoe	10		135	
	Dolomite, white; chert white; 140' of 20" drive pipe	50		185	
	Dolomite, light gray	20		205	
	Dolomite, light gray; chert, white	10		215	
	Dolomite, light gray	70		285	
	Shale, blue, dolomitic	10		295	
	Dolomite, light gray	120		415	
	RICHMOND				
	Shale, blue, dolomitic	105		520	
	GALENA-BLACK RIVER				
	Dolomite, gray	20		540	
	No sample	10		550	
	Dolomite, gray; 568' of 19" hole; 568' of 15 1/2" g.w.i. pipe	210		760	
	Dolomite, gray and blue	20		780	
	Dolomite, gray	30		810	
	Dolomite, gray, some blue	35		845	

County Cook
Y—DRILL RECORD

SHEET | COMPANY Pahlman Bros. | T. 41N | R. 13E | S. 20

HOLE NO.

NO.	STRATA	Thickness Feet	Thickness In.	Depth Feet
	ST. PETER			
	Sandstone, fine to medium, white	75		920
	Sandstone, medium, white	90		1010
	552' of 15 1/2" hole			
	580' of 12 1/2" 50 lb. g.w.i. pipe	55		1065
	Conglomerate-pebbles white chert in coarse gray sandstone	25		1090
	Shale, red and green; dolomite, gray	10		1100
	Chert, white; shale, red and green; dolomite, gray--conglomerate? 1120' shoe	30		1130
	Sandstone, coarse, pink; shale, red and green;	70		1200
	90' of 12 1/2" hole			
	104' of 10" liner 1210'			
	No sample	10		1210
	Shale, gray	20		1230
	Sandstone, fine, gray, dolomitic, glauconitic	30		1260
	MAZOMANIE			
	Sandstone, fine, light gray, dolomitic, glauconitic	10		1270
	Sandstone, coarse, white	10		1280
	Sandstone, fine, gray, dolomitic	10		1290
	DRESBACH			
	Sandstone, medium to fine, white, slightly dolomitic	30		1320
	Sandstone, coarse to medium, white	100		1420

14 5/8" hole

County COOK — Index No. 1020 20

T.—DRILL RECORD

(7730—2M—8-37)

E 3

T. 41N R. 12E & 20

COMPANY *Pohlman Bros.* HOLE NO.

No.	STRATA	Thickness Feet	Thickness In.	Depth Feet	Depth In.
	Sandstone, fine to very fine, light gray	20		1440	
	Sandstone, coarse to fine, white	20		1460	
	EAU CLAIRE				
	Sandstone, fine, gray and pink, dolomitic; shale, gray	20		1480	
	Shale, gray with layers of sandstone like 1460-1480	120		1600	
	Sandstone, very fine, gray, very dolomitic, glauconitic; some gray shale	120		1720	
	Sandstone, fine, light gray	40		1760	
	Sandstone, fine, light gray, dolomitic	30		1790	
	Sandstone, fine to very ~~fine,~~ light gray	50		1840	
	Sandstone, medium-fine, light gray	20		1860	
	Sandstone, very fine, gray	80		1940	
	Sandstone, medium to fine, light gray, pink	26		1966	
	*MOUNT SIMON from 1790-1966				
	Plugged to depth [illegible]' in [illegible]				
	See Sample Study by C.E. Needham in file.				

County COOK Index No. 1680 2H

T.—DRILL RECORD

TOWN Morton Grove TOWNSHIP | Map No. 20
COMPANY Gray Well Drilling Co. | R. 13 E.
FARM Poehlmann Bros. | No. | T. 41 N. | Sec. 20.1E
AUTHORITY
ELEVATION 633' (Geo. Otto)
COLLECTOR Thwaites DATE DRILLED
CONFIDENTIAL
Aug. 1, 1926-April 15, 1927

No.	STRATA	Thickness Feet	Thickness In.	Depth Feet	Depth In.
	DRIFT				
	Drift, no record	65		65	
	NIAGARA				
	Dolomite, light gray	10		75	
	Dolomite, black, bituminous, light gray, and pink; shale, blue, dolomitic, all broken	30		105	
	No samples	20		125	
	Like 75-105; same	10		135	
	Dolomite, white; chert, white; 140' of 20" drive pipe	50		185	
	Dolomite, light gray	20		205	
	Dolomite, light gray; chert, white	10		215	
	Dolomite, light gray	70		285	
	Shale, blue, dolomitic	10		295	
	Dolomite, light gray, some white chert	130		425	
	RICHMOND				
	Shale, blue, dolomitic	108		[illegible]	
	GALENA-BLACK RIVER				
	Dolomite, gray	20		540	
	No sample	10		[illegible]	
	Dolomite, gray; 560' of 15" hole; 560' of 12 1/2" s.w.i. pipe seal 560'	210		760	
	Dolomite, gray and blue	30		790	
	Dolomite, gray	30		820	

County COOK | Index No. 1080.20
T.—DRILL RECORD
(67727—5M—11-31) Illinois Geological Survey, Urbana

John C. Moore Corporation, Rochester, N. Y.

SHEET [illegible] T. [illegible] R. [illegible] [illegible]

COMPANY [illegible]

HOLE NO.

FARM

HOLE NO.

No.	STRATA	Thickness Feet	Thickness In.	Depth Feet	Depth In.
	Dolomite, gray, some blue	[illegible]		[illegible]	
	ST. PETER				
	Sandstone, fine to medium, white	75		[illegible]	
	Sandstone, medium, white	90		[illegible]	
	[illegible]' of [illegible] 1/2" hole				
	[illegible]' of [illegible] 1/2" 50 lb.				
	G.W.I. pipe				
	Sandstone, fine to medium, white	[illegible]		[illegible]	
	Conglomerate-pebbles white chert in coarse gray sandstone	[illegible]		[illegible]	
	Shale, red and green; dolomite, gray	10		1100	
	Chert, white; shale, red and green; dolomite, gray--conglomerate?				
	[illegible]' shoe	[illegible]		[illegible]	
	Sandstone, coarse, pink; shale, red and green;	70		1200	
	90' of 12 1/2" hole				
	104' of 10" liner 1210'				
	No sample	10		1210	
	Shale, gray	[illegible]		[illegible]	
	MAZOMANIE				
	Sandstone, fine, gray, dolomitic, glauconitic	[illegible]		[illegible]	
	Sandstone, fine, light gray, dolomitic, glauconitic	10		1270	
	Sandstone, coarse, white	10		[illegible]	
	Sandstone, fine, gray, dolomitic	20		[illegible]	
	DRESBACH				
	Sandstone, medium to fine,				

County COOK

T.--DRILL RECORD

(67728--5M--11-31)

Index No. [illegible]

SHEET [illegible] T. [illegible]

COMPANY [illegible] Bros. HOLE NO.

FARM HOLE NO.

No.	STRATA	Thickness Feet	Thickness In.	Depth Feet	Depth In.
	white, slightly dolomitic	20		[illegible]	
	Sandstone, coarse to medium white	100		[illegible]	
	T.D.? of 10" hole				
	Sandstone, fine to very fine, light grey	20		1480	
	Sandstone, coarse to fine, white	20		[illegible]	
	EAU CLAIRE				
	Sandstone, fine, grey and pink, dolomitic; shale, grey	20		[illegible]	
	Shale, grey with layers of sandstone like 1460-1480	120		[illegible]	
	Sandstone, very fine, grey, very dolomitic, [illegible]; some grey shale	120		[illegible]	
	Sandstone, fine, light grey	40		[illegible]	
	Sandstone, fine, light grey, dolomitic	20		1790	
	MOUNT SIMON from 1790-1968				
	Sandstone, fine to very fine, light grey	50		[illegible]	
	Sandstone, medium-fine, light grey	20		[illegible]	
	Sandstone, very fine, grey	20		[illegible]	
	Sandstone, medium to fine, light gray, pink	26		[illegible]	
	plugged to depth 1440' in 1928				

See Sample Study ~~and description of insoluble residues~~ by C.E. Needham in file.

County COOK

T.—DRILL RECORD

(67728—5M—11-31) [illegible] 7

Index No. 1020.[illegible]

TOWN Morton Grove TOWNSHIP. Map 20

COMPANY Town well (F.M. Gray). 1 R. 13 E

FARM Morton Grove No. 41 T N Sec.

AUTHORITY

ELEVATION 627' T. M. - Ground water Section DATE DRILLED 1914 20.2F NW Cor.

COLLECTOR

CONFIDENTIAL

125'E. of Calif. Ave. 175'N. - Lincoln Ave.

1600' N line, 700' W line of NW

No.	STRATA	Thickness Feet	Thickness In.	Depth Feet	Depth In.
	Drift	128		128	
	Limestone	162		290	
	Shale	25		315	
	Shale and lime	30		345	
	Shale, sticky	165		510	
	Trenton and Galena limestone	335		845	
	Shale, sandy	242		1087	
	Marl, red	8		1095	
	Lime marl, hard, streaks	11		1106	
	Marl streaks, shelly lime	14		1120	
	Lime marl and shale	22		1142	
	Magnesian limestone	48		1190	
	Marl, red	22		1212	
	Shale, sandy	63		1275	
	St. Peters sandstone	187		1462	TD

This well was originally drilled with a 4-inch bottom, later it was reamed out to 8-inch diameter to the 1462 feet in depth, lined and sealed with 6 inch pipe to cut off the upper levels. This 6 inch pipe extends to about 232 feet from the bottom. Ordinarily this 232 ft. of exposed St. Peters sandstone should develop a flow of over 300 gallons per minute, but the pump after working an hour begins to churn and the water level drops below the suction. I am of the opinion that the 232 ft. is not delivering enough water

County COOK Index No. 2020.2F

—DRILL RECORD 20-41N-13E

ET 2
MPANY Town well
RM

T. 41 N R. 13 E 20
HOLE NO. 1

STRATA	Thickness Feet	Thickness In.	Depth Feet	Depth In.
for the pump and the liner pipe has cut off the flow.				
SEE correspondence 1860-170				
Casing: 10" - 125'				
8" - 975'				

ounty COOK
T.—DRILL RECORD
17091—4M—11-29) 3

Index No. O
20-41N-13E
1020.2F

Town: Niles Center Township: Niles Map No. 10

Company: Snelten Brothers No. R. 13E

Farm: Schladt, Albert No. T. 41 N Sec. 29

Authority: Snelten Brothers

Elevation: 624 Topo. Map

Collector:

Confidential Date Drilled: Feb. 1940

200' N of Gross Point Rd. (also known as Harts Rd.) and [illegible] one half blk. west of Railroad Ave. (also known as Lehigh Avenue)

No.	Strata	Thickness Feet	Thickness In.	Depth Feet	Depth In.
	Clay, yellow, sandy	18		18	
	Clay, blue	69		87	
	Sand	7		94	
	Rock	85		179	

Cased with 4½" to 94'
Water level from surface 40'
Capacity 5 g.p.m.
Water lowered to 95' in 1 hr.
Total length of test run 1 hr.

NO ENVELOPE

COUNTY Cook INDEX NO. 1029

DRILL RECORD

29-41N-13E

ILLINOIS GEOLOGICAL SURVEY, URBANA

Town Skokie Township Niles 13E
Company Peter Snelten No. T.
Farm Hanover, B. P. No.
Authority Driller's Notebook 41
Elevation 624 top. map N
Collector
Confidential Date Drilled March 1942
SE NE SW

No.	Strata	Thickness Feet	Thickness In.	Depth Feet	Depth In.
	Gross Point (Harts) Road and Caldwell.				
	Black topsoil	1		1	
	Yellow clay	6		7	
	Sand	2		9	
	Sandy clay	40		49	
	Hardpan	40		89	
	Gravel	6		95	
	Rock	42		137	
	Water level 38'				
	98'10" of casing				
	4½" well				
	NO ENVELOPE				

COUNTY Cook 558559 31-41N-13E

Town Park Ridge Town

Company Hoetzer Bros. No.

Farm Forest Preserve No.

Authority Hoetzer Bros.

Elevation 622' E.L.

Collector

Confidential Date Drilled

T. 41 N

R 12 E

Sec. 32

200' S line, 3100' W line of Section

No.	Strata	Thickness Feet	Thickness In.	Depth Feet	Depth In.
	Yellow clay and sand	12		12	
	Blue clay and little gravel	26		38	
	Hard clay, sand and gravel	3		41	
	Soft clay, sand and gravel;	9		50	
	Blue clay, sand and gravel	6		56	
	Hard pan, sand and gravel	25		81	
	Gravel	5		86	
	Limestone	44		130	
	Water level 13'6"				
	Drawndown 15' at 30 g.p.m.				
	Total depth 130'				
	Depth in rock 44'				
	NO ENVELOPE				

COUNTY Cook SS 1945 32-41N-12E

(40430—20M) ILLINOIS GEOLOGICAL SURVEY, URBANA (3-43) 2

VOLATILE ORGANIC COMPOUND ANALYTICAL RESULTS
CRODA INKS CORPORATION
NILES, ILLINOIS

PARAMETER	SB01-1	SB01-2	SB01-3	SB02-1	SB02-2	SB02-3	SB03-1	SB03-2
METHYLENE CHLORIDE	(B) 23	(B) 30	(B) 60	(B) 20	(B) 28	(B) 53	(B) 23	(B) 43
ACETONE	(B) 40	(B) 10	(B) 18	(B) 27	BDL	(B) 64	BDL	(B) 33
TRICHLOROETHENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TOLUENE	BDL	BDL	7	BDL	BDL	BDL	BDL	BDL
TICS	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TOTAL VOLATILES	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0

NOTES: 1. RESULTS ARE REPORTED IN MICROGRAMS PER KILOGRAM (UG/KG)
2. SB01-1 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 1 TO 3 FEET ETC.
3. SB01-2 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 3.5 TO 5.5 FEET ETC.
4. SB01-3 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 6 TO 8 FEET ETC.
5. SB01-4 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 8.5 TO 10.5 FEET ETC.
6. BDL STANDS FOR "BELOW DETECTION LIMIT"
7. J INDICATES AN ESTIMATED VALUE
8. B INDICATES THE ANALYTE WAS FOUND IN THE BLANK AS WELL AS THE SAMPLE

VOLATILE ORGANIC COMPOUND ANALYTICAL RESULTS (CONT'D)
CRODA INKS CORPORATION
NILES, ILLINOIS

PARAMETER	SB04-1	SB04-2	SB04-3	SB05-1	SB05-2	SB05-4	SB06-1	SB06-2
METHYLENE CHLORIDE	(B) 50	(B) 55	(B) 130	(B) 30	(B) 21	(B) 92	(B) 31	(B) 34
ACETONE	BDL	(B) 7	(B) 46	(B) 54	BDL	(B) 38	(B) 10	(B) 6
TRICHLOROETHENE	BDL	BDL	4	BDL	BDL	BDL	BDL	BDL
TOLUENE	BDL	BDL	26	9	BDL	8	(J) 3	BDL
TICS	BDL	BDL	7.5	BDL	BDL	BDL	11	BDL
TOTAL VOLATILES	0.0	0.0	37.5	9.0	0.0	8.0	14.0	0.0

NOTES: 1. RESULTS ARE REPORTED IN MICROGRAMS PER KILOGRAM (UG/KG)
2. SB01-1 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 1 TO 3 FEET ETC.
3. SB01-2 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 3.5 TO 5.5 FEET ETC.
4. SB01-3 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 6 TO 8 FEET ETC.
5. SB01-4 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 8.5 TO 10.5 FEET ETC.
6. BDL STANDS FOR "BELOW DETECTION LIMIT"
7. J INDICATES AN ESTIMATED VALUE
8. B INDICATES THE ANALYTE WAS FOUND IN THE BLANK AS WELL AS THE SAMPLE

VOLATILE ORGANIC COMPOUND ANALYTICAL RESULTS (CONT'D)
CRODA INKS CORPORATION
NILES, ILLINOIS

PARAMETER	SB07-1	SB07-2	SB08-1	SB08-2	SB09-1	SB09-2	SB10-1	SB10-2	SB11-1	SB11-2	SB11-4
METHYLENE CHLORIDE	(B) 24	(B) 110	(B) 30	(B) 120	(B) 31	(B) 29	(B) 19	(B) 32	(B) 23	(B) 28	(B) 44
ACETONE	(B) 18	(B) 17	(B) 14	(B) 38	(B) 26	(B) 6	BDL	(B) 26	BDL	(B) 17	(B) 14
TRICHLOROETHENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TOLUENE	(J) 2	(J) 3	(J) 2	(J) 1	60	(J) 5	BDL	BDL	BDL	BDL	BDL
TICS	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TOTAL VOLATILES	2.0	3.0	2.0	1.0	60.0	5.0	0.0	0.0	0.0	0.0	0.0

NOTES: 1. RESULTS ARE REPORTED IN MICROGRAMS PER KILOGRAM (UG/KG)
2. SB01-1 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 1 TO 3 FEET ETC.
3. SB01-2 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 3.5 TO 5.5 FEET ETC.
4. SB01-3 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 6 TO 8 FEET ETC.
5. SB01-4 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 8.5 TO 10.5 FEET ETC.
6. BDL STANDS FOR "BELOW DETECTION LIMIT"
7. J INDICATES AN ESTIMATED VALUE
8. B INDICATES THE ANALYTE WAS FOUND IN THE BLANK AS WELL AS THE SAMPLE

VOLATILE ORGANIC COMPOUND ANALYTICAL RESULTS (CONT'D)
CRODA INKS CORPORATION
NILES, ILLINOIS

PARAMETER	SB12-1	SB12-2	SB12-3	SB13-1	SB13-2	SB14-1	SB14-2	SB14-3	SB15-1	SB15-2
METHYLENE CHLORIDE	(B) 28	(B) 25	(B) 25	(B) 40	(B) 20	(B) 17	(B) 16	(B) 19	(B) 16	(B) 26
ACETONE	BDL	BDL	(B) 11	73	(B) 9	(B) 19	BDL	BDL	(B) 6	(B) 23
TRICHLOROETHENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TOLUENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	(J) 5	(J) 4	BDL
TICS	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TOTAL VOLATILES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	4.0	0.0

NOTES: 1. RESULTS ARE REPORTED IN MICROGRAMS PER KILOGRAM (UG/KG)
2. SB01-1 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 1 TO 3 FEET ETC.
3. SB01-2 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 3.5 TO 5.5 FEET ETC.
4. SB01-3 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 6 TO 8 FEET ETC.
5. SB01-4 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 8.5 TO 10.5 FEET ETC.
6. BDL STANDS FOR "BELOW DETECTION LIMIT"
7. J INDICATES AN ESTIMATED VALUE
8. B INDICATES THE ANALYTE WAS FOUND IN THE BLANK AS WELL AS THE SAMPLE

VOLATILE ORGANIC COMPOUND ANALYTICAL RESULTS (CONT'D)
CRODA INKS CORPORATION
NILES, ILLINOIS

PARAMETER	SB16-1	SB16-2	SB16-3	SB16-4
METHYLENE CHLORIDE	(B) 17	(B) 31	(B) 43	(B) 30
ACETONE	(B) 5	(B) 13	(B) 9	(B) 6
TRICHLOROETHENE	BDL	BDL	BDL	8
TOLUENE	BDL	BDL	20	BDL
TICS	BDL	BDL	BDL	BDL
TOTAL VOLATILES	0.0	0.0	20.0	8.0

NOTES: 1. RESULTS ARE REPORTED IN MICROGRAMS PER KILOGRAM (UG/KG)
2. SB01-1 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 1 TO 3 FEET ETC.
3. SB01-2 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 3.5 TO 5.5 FEET ETC.
4. SB01-3 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 6 TO 8 FEET ETC.
5. SB01-4 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 8.5 TO 10.5 FEET ETC.
6. BDL STANDS FOR "BELOW DETECTION LIMIT"
7. J INDICATES AN ESTIMATED VALUE
8. B INDICATES THE ANALYTE WAS FOUND IN THE BLANK AS WELL AS THE SAMPLE

POLYNUCLEAR AROMATIC HYDROCARBON ANALYTICAL RESULTS
CRODA INKS CORPORATION
NILES, ILLINOIS

PARAMETER	SB01-1	SB01-2	SB01-3	SB02-1	SB02-2	SB02-3	SB03-1	SB03-2
PHENANTHRENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
FLUORANTHENE	BDL	11	BDL	BDL	BDL	BDL	BDL	BDL
PYRENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BENZO(A)ANTHRACENE	BDL	4	BDL	BDL	BDL	BDL	BDL	BDL
BENZO(B)FLUORANTHENE	BDL	4.3	BDL	BDL	BDL	BDL	BDL	BDL
BENZO(K)FLUORANTHENE	BDL	2.5	BDL	BDL	BDL	BDL	BDL	BDL
BENZO(A)PYRENE	BDL	4	BDL	BDL	BDL	BDL	BDL	BDL
BENZO(G,H,I)PERYLENE	BDL	BDL	4.8	BDL	BDL	4.7	BDL	BDL
IDENO(1,2,3)PYRENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TOTAL PNA'S	0.0	25.8	4.8	0.0	0.0	4.7	0.0	0.0

NOTES: 1. RESULTS ARE REPORTED IN MICROGRAMS PER KILOGRAM (UG/KG)
2. SB01-1 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 1 TO 3 FEET ETC.
3. SB01-2 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 3.5 TO 5.5 FEET ETC.
4. SB01-3 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 6 TO 8 FEET ETC.
5. SB01-4 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 8.5 TO 10.5 FEET ETC.
6. BDL STANDS FOR "BELOW DETECTION LIMIT"
7. J INDICATES AN ESTIMATED VALUE
8. B INDICATES THE ANALYTE WAS FOUND IN THE BLANK AS WELL AS THE SAMPLE

POLYNUCLEAR AROMATIC HYDROCARBON ANALYTICAL RESULTS (CONT'D)
CRODA INKS CORPORATION
NILES, ILLINOIS

PARAMETER	SB04-1	SB04-2	SB04-3	SB05-1	SB05-2	SB05-4	SB06-1	SB06-2
PHENANTHRENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
FLUORANTHENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4.4
PYRENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BENZO(A)ANTHRACENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2
BENZO(B)FLUORANTHENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BENZO(K)FLUORANTHENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BENZO(A)PYRENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.3
BENZO(G,H,I)PERYLENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	5.4
IDENO(1,2,3)PYRENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TOTAL PNA'S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.1

NOTES: 1. RESULTS ARE REPORTED IN MICROGRAMS PER KILOGRAM (UG/KG)
2. SB01-1 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 1 TO 3 FEET ETC.
3. SB01-2 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 3.5 TO 5.5 FEET ETC.
4. SB01-3 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 6 TO 8 FEET ETC.
5. SB01-4 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 8.5 TO 10.5 FEET ETC.
6. BDL STANDS FOR "BELOW DETECTION LIMIT"
7. J INDICATES AN ESTIMATED VALUE
8. B INDICATES THE ANALYTE WAS FOUND IN THE BLANK AS WELL AS THE SAMPLE

POLYNUCLEAR AROMATIC HYDROCARBON ANALYTICAL RESULTS (CONT'D)
CRODA INKS CORPORATION
NILES, ILLINOIS

PARAMETER	SB07-1	SB07-2	SB08-1	SB08-2	SB09-1	SB09-2	SB10-1	SB10-2	SB11-1	SB11-2	SB11-4
PHENANTHRENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
FLUORANTHENE	5.8	13	BDL	BDL	BDL	BDL	BDL	BDL	3.4	BDL	BDL
PYRENE	BDL	BDL	2.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	36
BENZO(A)ANTHRACENE	2.1	3.2	1.5	BDL	BDL	BDL	BDL	BDL	1.4	BDL	BDL
BENZO(B)FLUORANTHENE	2.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BENZO(K)FLUORANTHENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BENZO(A)PYRENE	1.7	2.8	BDL	BDL	BDL	BDL	BDL	BDL	1.3	BDL	BDL
BENZO(G,H,I)PERYLENE	BDL	BDL	BDL	BDL	BDL	6.9	BDL	BDL	BDL	BDL	BDL
IDENO(1,2,3)PYRENE	BDL	BDL	BDL	BDL	BDL	12	BDL	BDL	BDL	BDL	BDL
TOTAL PNA'S	11.8	19.0	3.9	0.0	0.0	18.9	0.0	0.0	6.1	0.0	36.0

NOTES: 1. RESULTS ARE REPORTED IN MICROGRAMS PER KILOGRAM (UG/KG)
2. SB01-1 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 1 TO 3 FEET ETC.
3. SB01-2 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 3.5 TO 5.5 FEET ETC.
4. SB01-3 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 6 TO 8 FEET ETC.
5. SB01-4 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 8.5 TO 10.5 FEET ETC.
6. BDL STANDS FOR "BELOW DETECTION LIMIT"
7. J INDICATES AN ESTIMATED VALUE
8. B INDICATES THE ANALYTE WAS FOUND IN THE BLANK AS WELL AS THE SAMPLE

POLYNUCLEAR AROMATIC HYDROCARBON ANALYTICAL RESULTS (CONT'D)
CRODA INKS CORPORATION
NILES, ILLINOIS

PARAMETER	SB12-1	SB12-2	SB12-3	SB13-1	SB13-2	SB14-1	SB14-2	SB14-3	SB15-1	SB15-2
PHENANTHRENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
FLUORANTHENE	BDL	BDL	BDL	140	BDL	3.2	32	BDL	4.1	BDL
PYRENE	BDL	BDL	BDL	110	BDL	BDL	40	BDL	BDL	BDL
BENZO(A)ANTHRACENE	BDL	BDL	BDL	47	BDL	1.4	12	BDL	1.4	BDL
BENZO(B)FLUORANTHENE	BDL	BDL	BDL	40	BDL	2.1	16	4	BDL	BDL
BENZO(K)FLUORANTHENE	BDL	BDL	BDL	25	BDL	BDL	9.4	BDL	BDL	BDL
BENZO(A)PYRENE	BDL	BDL	BDL	38	BDL	1.4	15	BDL	BDL	BDL
BENZO(G,H,I)PERYLENE	BDL	BDL	BDL	29	BDL	BDL	13	8.4	BDL	BDL
IDENO(1,2,3)PYRENE	BDL	BDL	BDL	BDL	BDL	BDL	11	BDL	BDL	BDL
TOTAL PNA'S	0.0	0.0	0.0	429.0	0.0	8.1	148.4	12.4	5.5	0.0

NOTES: 1. RESULTS ARE REPORTED IN MICROGRAMS PER KILOGRAM (UG/KG)
2. SB01-1 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 1 TO 3 FEET ETC.
3. SB01-2 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 3.5 TO 5.5 FEET ETC.
4. SB01-3 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 6 TO 8 FEET ETC.
5. SB01-4 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 8.5 TO 10.5 FEET ETC.
6. BDL STANDS FOR "BELOW DETECTION LIMIT"
7. J INDICATES AN ESTIMATED VALUE
8. B INDICATES THE ANALYTE WAS FOUND IN THE BLANK AS WELL AS THE SAMPLE

POLYNUCLEAR AROMATIC COMPOUND ANALYTICAL RESULTS (CONT'D)
CRODA INKS CORPORATION
NILES, ILLINOIS

PARAMETER	SB16-1	SB16-2	SB16-3	SB16-4
PHENANTHRENE	BDL	BDL	BDL	BDL
FLUORANTHENE	9.5	BDL	2.9	BDL
PYRENE	BDL	BDL	BDL	BDL
BENZO(A)ANTHRACENE	3.3	BDL	1.3	BDL
BENZO(B)FLUORANTHENE	4.5	BDL	2.8	BDL
BENZO(K)FLUORANTHENE	2.4	BDL	BDL	BDL
BENZO(A)PYRENE	3.6	BDL	BDL	BDL
BENZO(G,H,I)PERYLENE	BDL	BDL	5.3	4.3
IDENO(1,2,3)PYRENE	BDL	BDL	BDL	10
TOTAL PNA'S	23.3	0.0	12.3	14.3

NOTES: 1. RESULTS ARE REPORTED IN MICROGRAMS PER KILOGRAM (UG/KG)
2. SB01-1 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH
3. SB01-2 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH
4. SB01-3 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH
5. SB01-4 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH
6. BDL STANDS FOR "BELOW DETECTION LIMIT"
7. J INDICATES AN ESTIMATED VALUE
8. B INDICATES THE ANALYTE WAS FOUND IN THE BLANK AS WELL AS THE SAMPLE

HEAVY METAL ANALYTICAL RESULTS
CRODA INKS CORPORATION
NILES, ILLINOIS

PARAMETER	SB01-1	SB02-1	SB03-1	SB04-1	SB05-1	SB06-1	SB07-1	SB08-1
PH	8.16	7.84	7.88	7.41	7.79	8.00	8.00	7.84
CHROMIUM	11.2	11.2	9.40	24.6	10.8	14.2	9.59	12.2
LEAD	28.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL

NOTES: 1. RESULTS ARE REPORTED IN MILLIGRAMS PER KILOGRAM (MG/KG)
2. SB01-1 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 1 TO 3 FEET ETC.
3. SB01-2 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 3.5 TO 5.5 FEET ETC.
4. SB01-3 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 6 TO 8 FEET ETC.
5. SB01-4 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 8.5 TO 10.5 FEET ETC.
6. BDL STANDS FOR "BELOW DETECTION LIMIT"
7. J INDICATES AN ESTIMATED VALUE
8. B INDICATES THE ANALYTE WAS FOUND IN THE BLANK AS WELL AS THE SAMPLE

HEAVY METAL ANALYTICAL RESULTS (CONT'D)
CRODA INKS CORPORATION
NILES, ILLINOIS

PARAMETER	SB09-1	SB10-1	SB11-1	SB12-1	SB13-1	SB14-1	SB15-1	SB16-1
PH	7.86	7.58	7.45	7.75	7.70	7.73	8.09	8.10
CHROMIUM	8.00	9.00	13.3	7.78	19.4	6.60	13.2	12.8
LEAD	BDL	BDL	BDL	BDL	67.9	BDL	BDL	BDL

NOTES: 1. RESULTS ARE REPORTED IN MILLIGRAMS PER KILOGRAM (MG/KG)
2. SB01-1 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 1 TO 3 FEET ETC.
3. SB01-2 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 3.5 TO 5.5 FEET ETC.
4. SB01-3 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 6 TO 8 FEET ETC.
5. SB01-4 DENOTES SOIL BORING NUMBER ONE AT A SPLIT SPOON INTERVAL DEPTH OF 8.5 TO 10.5 FEET ETC.
6. BDL STANDS FOR "BELOW DETECTION LIMIT"
7. J INDICATES AN ESTIMATED VALUE
8. B INDICATES THE ANALYTE WAS FOUND IN THE BLANK AS WELL AS THE SAMPLE

10/13/86 LABORATORY REPORT PAGE 1

CBC-AquaSearch

ENVIRONMENTAL SERVICES:
Analytical, Field & Consulting
Air
Water & Wastewater
Solid & Hazardous Waste
Industrial Hygiene

S026 8410095 JBU

S.E.T. LIQUID WASTE SYSTEMS, INC.
350 SUMAC ROAD
WHEELING ,IL 60090
ATTN: KATHLEEN KROEPIL

SAMPLE 86274-S07325 #6762-110/UNDERGROUND TANK SLUDGE/CRODA INKS
DATE COLLECTED 9/30/86 DATE RECEIVED 10/01/86

TEST NAME	RESULT	UNITS	EP TOXICITY		EP LIMIT	HAZ.CODE
CADMIUM - EP			0.64	MG/L	1.0	
CHROMIUM - EP			0.10	MG/L	5.0	
LEAD - EP			0.8	MG/L	5.0	
BARIUM - EP			0.87	MG/L	100.0	
SILVER - EP			<0.01	MG/L	5.0	
ARSENIC - EP			0.004	MG/L	5.0	
SELENIUM - EP			0.066	MG/L	1.0	
MERCURY - EP			<0.0004	MG/L	0.2	
PH (UNITS)	9.5				2.0-12.5	
TOTAL SULFIDE	<1	PPM				
FLASH POINT (FAHRENHEIT)	110	DEG. F			140.0	D001
SPECIFIC GRAVITY	0.64	G/ML				
BTU'S	14000	BTU'S/LB				
% CHLORINE	0.19	%				
TOTAL SOLIDS	29	%				
ASH CONTENT	3.6	%				

METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTES, 1979, EPA-600/4-79-020.
TEST METHODS FOR EVALUATING SOLID WASTE, PHYSICAL/CHEMICAL METHODS, 1982, EPA SW846.
ANNUAL BOOKS OF ASTM STANDARDS, 1982.
IF YOU HAVE ANY QUESTIONS PLEASE CONTACT OUR CLIENT SERVICE DEPARTMENT AT (414) 764 - 7005 OR CALL TOLL FREE; 1-800-592-5900, WAIT FOR DIAL TONE AND DIAL EXTENSION 332.
ANY REMAINING WASTE SAMPLES WILL BE RETURNED TO THE ADDRESS LISTED ABOVE 8 WEEKS FROM THE RECEIVING DATE OF THIS REPORT.

N/T - NOT TESTED N/A - NOT APPLICABLE APPROVAL

CleanHarbors

WASTE ANALYSIS REPORT/DECISION SHEET

8132 LAB SAMPLE TRACKING #

154 BOX RETAIN #

R 32511 PROFILE SHEET #

DATE IN 3-6-89 DATE OUT _____ LAB # 022203

ANALYSIS: Accepts RESULT/NOTE ANALYST: VND

PHYSICAL DESCRIPTION: Semi-solid

APPEARANCE: gray

% SOLID: 50%

PH: 12

WATER MIX: sinks

IGNITABLE SCREEN: >140

BTU: 7908

% CHLORINE: ND

REACTIVE CYANIDES SCREEN: ND

REACTIVE SULFIDES SCREEN: ND

PCB'S: —

TOC: —

SUPPLEMENTAL ANALYSIS: _____

RESULTS APPROVED: Marcella Montgomery DATE: 3-6-89
LABORATORY MANAGER

☐ APPROVED

☐ DISAPPROVED

DISPOSAL OUTLET: CWK - Chicago

CODE: CCR-50

CH 134

2539

WARZYN

Engineers & Scientists
Environmental Services
Waste Management
Water Resources
Site Development
Special Structures
Geotechnical Analysis

ILD002293124

July 28, 1989
40045.03

Mr. Larry Rokosz
Croda Inks Corporation
7777 North Merrimac Avenue
Niles, Illinois 60648-3490

RE: Demonstration and Certification for Hazardous Waste Landfill Disposal
Croda Inks Corporation
Niles, Illinois

Dear Mr. Rokosz:

As requested by the Croda Inks Corporation, Warzyn Engineering Inc. (Warzyn) has prepared this demonstration and certification, pursuant to 40 Code of Federal Regulations (CFR) Section 268.8a(2). The demonstration and certification state that the Croda Inks Corporation, through services provided by Warzyn, has made a good faith effort to locate and contract with practically available treatment and recovery facilities and that landfilling of the below described waste is the most practical disposal alternative currently available.

DEMONSTRATION

The waste material is soil which was contaminated when ink sludge (a K086 waste solvent sludge subcategory) leaked and/or spilled during underground storage tank (UST) use at the above address. Soil contaminated with K086 hazardous waste qualifies as a first third soft hammer waste. The volume of contaminated concrete and soil to be disposed of is estimated to be approximately 60 cubic yards. Two representative soil samples were collected by Warzyn Engineering Inc. (Warzyn) on June 6, 1989, from the stockpiled soil and analyzed for volatile organic compounds (VOCs) (SW-846 methods 8010 and 8020 of the Resource Conservation and Recovery Act (RCRA)) and RCRA hazardous waste characteristics.

Warzyn Engineering Inc.
Hamilton Lakes
One Pierce Place
Suite 1110
Itasca, Illinois 60143-2681
(312) 773-8484

VOC analysis identified total xylene and toluene in sample one as 44 parts per billion (ppb) and 451 ppb respectively. VOC analysis identified total xylene levels at 15 ppb in the second sample. The E.P. Toxicity analysis showed that all eight primary metals were below the defined limit identifying the waste as hazardous. The laboratory analysis is attached.

K086 waste (solvent sludge subcategory) is hazardous as defined by RCRA for containing constituents in excess of the EPA hazardous limits for hexavalent chromium and lead. The analysis revealed chromium and lead levels below E.P. Toxicity hazardous waste criteria. VOC levels were identified at relatively low concentrations within the soil matrix. Because the waste material consists of soil and some large concrete fragments, recycling or recovery is not practical. Since the detected VOC and heavy metal levels are low and the volume of excavated soil is small, in-situ bioremediation or fixation is also not a practical alternative. The facility does not possess a Part A or Part B RCRA permit to perform on-site treatment and/or disposal of the excavated soil.

One of the best available treatment alternatives for this waste is off-site incineration. Three incinerator facilities were contacted by Warzyn for disposal purposes. The facility information is shown in Table 1. This alternative is not believed to be practical as demonstrated from a cost analysis. The cost of incineration, including shipment but excluding concrete crushing, ranges from approximately $1,100/ton to $2,125/ton. The cost to landfill the excavated soil, including shipment, is approximately $150/ton. Based on the fact that soil is below E.P. Toxicity levels for the constituents defining this material as a hazardous waste, and that the ratio of incineration versus landfilling costs is greater than 2.0 (which U.S. EPA has defined as not practical), landfilling is believed to be the only practical disposal alternative presently available.

CERTIFICATION

I certify, under penalty of law, that the requirements of 40 CFR 268.8(a)1 have been met and that disposal in a landfill or surface impoundment is the only practical alternative to treatment currently available. I believe that the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

CERTIFICATION FOR CRODA INKS

Walter Banker
Name

Vice President of Finance
Title

Signature

July 28, 1989
Date

Warzyn appreciates the opportunity to be of service to you on this project. If you have any questions, contact us at (312) 773-8484.

Sincerely,

WARZYN ENGINEERING INC.

Mark Rothas

Mark S. Rothas
Senior Project Engineer

Attachment: Table 1

WP
40045L04JDW/gmg/MSR

WARZYN

TABLE 1
TREATMENT FACILITY CONTACT INFORMATION
CRODA INKS CORPORATION
NILES, ILLINOS

Facility	Contact Person	Facility Location	Telephone	Contact Date	Cost/Ton
Rollins Incinerator	David Kurweg	Deer Park, Texas	(312) 260-9470	06/16/89	$ 2,125
LWD, Inc.	Rose Burton	Calvert City, Kentucky	(502) 395-8313	06/16/89	$ 1,100
ENSCO	Jenny Henson	Little Rock, Arkansas	(501) 223-4100	06/16/89	$ 2,075(1)

(1) Cannot accept waste in bulk - waste must be received in drums.

Landfill Facilities					
Adams Center	Kim Bigalski	Fort Wayne, Indiana	(312) 513-4519	06/20/89	$ 160(2)
Peoria Disposal	Cheryl Franks	Peoria, Illinois	(309) 688-0760	06/21/89	$ 125

(2) Adams Center is not accepting any new waste streams for this year and possibly for the next 3 to 5 years.

Quality Analytical Laboratories, Inc.
"Precision, Accuracy and Service"

Warzyn Engineers, Inc.
ATTN: James W. Wink
1 Pierce Place
Itasca, IL 60143

Job #:1-631
Date: 6/12/1989

Sampling Date: unknown
Analyses Date: 6/6-12/1989
Technique/Method: The samples were analyzed as per USEPA SW-846 methods 8010 and 8020

Identification: Two samples identified as:

Project Name: Croda Inks Corp
Project #: 40045.03
Location: Niles, IL

All results expressed in ug/kg (ppb)

Results: Soil Pile #1

Parameter	method detection Limit	Analysis
Chloromethane	5	BDL
Bromomethane	5	BDL
Vinyl Chloride	5	BDL
Chloroethane	5	BDL
Methylene Chloride	1	BDL
Trichlorofluoromethane	1	BDL
Acetone	75	BDL
Carbon Disulfide	1	BDL
Dibromomethane	1	BDL
Dichlorofluoromethane	1	BDL
Ethanol	25	BDL
Iodomethane	1	BDL
1,1-Dichloroethane	1	BDL
1,1-Dichloroethene	1	BDL
trans-1,2-Dichloroethene	1	BDL
Trichloromethane (Chloroform)	1	BDL
1,2-Dichloroethane	1	BDL
1,1,1-Trichloroethane	1	BDL
1,2,3-Trichloropropane	1	BDL
Vinyl Acetate	25	BDL
Tetrachloromethane(Carbon Tet)	1	BDL
Bromodichloromethane	1	BDL
1,2-Dichloropropane	1	BDL
Tribromomethane (Bromoform)	1	BDL
4-Methyl-2-pentanone (MIBK)	25	BDL
trans-1,3-Dichloropropene	1	BDL
2-Chlorovinyl Ether	1	BDL
Trichloroethene	1	BDL
Benzene	1	BDL
Dibromochloromethane	1	BDL
1,1,2-Trichloroehtane	1	BDL
cis-1,3-Dichloropropene	1	BDL

Results: Soil Pile #2

	Total Metals	E.P. Toxicity Metals
Cu	NA	NA
Cd	NA	<1.0mg/l
Cr	NA	<1.0mg/l
Pb	NA	<1.0mg/l
Ag	NA	<1.0mg/l
Se	NA	<1.0mg/l
As	NA	<1.0mg/l
Hg	NA	<0.01mg/l
Zn	NA	NA
Ni	NA	NA
Fe	NA	NA
Ba	NA	<50.0mg/l

CN (Tot) ..... <1.0mg/kg
Sulfide (Tot) .. <1.0mg/kg
Chlorine ..... NA
Flashpoint ..... >140 degrees F (Pensky-Martens C.C.)
Paint Filter ... pass
Total Solids ... NA
pH 8.4

NA = Not Applicable

Respectfully Submitted,

Maureen M. Gibbons

Maureen M. Gibbons
Lab Manager
Quality Analytical Labs, Inc.

Parameter	method detection Limit	Analysis
trans-1,3-Dichloropropene	1	BDL
1,1,2,2-Tetrachloroethane	1	BDL
Tetrachloroethene	1	BDL
Methylbenzene (Toluene)	1	451
Ethyl Benzene	1	BDL
Xylenes (Total)	3	44
2-Hexanone	10	BDL
Acrolien	1	BDL
Acrylonitrile	1	BDL
1,4-Dichloro-2-butane	1	BDL
Ethyl Methacrylate	1	BDL
Chlorobenzene	1	BDL
2-Butanone (Methyl Ethyl Ketone)	50	BDL
Styrene	1	BDL

Note: Bromofluorobenzene present

Results: Soil Pile #2

Parameter	method detection Limit	Analysis
Chloromethane	5	BDL
Bromomethane	5	BDL
Vinyl Chloride	5	BDL
Chloroethane	5	BDL
Methylene Chloride	1	BDL
Trichlorofluoromethane	1	BDL
Acetone	75	BDL
Carbon Disulfide	1	BDL
Dibromomethane	1	BDL
Dichlorofluoromethane	1	BDL
Ethanol	25	BDL
Iodomethane	1	BDL
1,1-Dichloroethane	1	BDL
1,1-Dichloroethene	1	BDL
trans-1,2-Dichloroethene	1	BDL
Trichloromethane (Chloroform)	1	BDL
1,2-Dichloroethane	1	BDL
1,1,1-Trichloroethane	1	BDL
1,2,3-Trichloropropane	1	BDL
Vinyl Acetate	25	BDL
Tetrachloromethane(Carbon Tet)	1	BDL
Bromodichloromethane	1	BDL
1,2-Dichloropropane	1	BDL
Tribromomethane (Bromoform)	1	BDL
4-Methyl-2-pentanone (MIBK)	25	BDL
trans-1,3-Dichloropropene	1	BDL
2-Chlorovinyl Ether	1	BDL
Trichloroethene	1	BDL
Benzene	1	BDL

Parameter	method detection Limit	Analysis
Dibromochloromethane	1	BDL
1,1,2-Trichloroehtane	1	BDL
cis-1,3-Dichloropropene	1	BDL
trans-1,3-Dichloropropene	1	BDL
1,1,2,2-Tetrachloroethane	1	BDL
Tetrachloroethene	1	BDL
Methylbenzene (Toluene)	1	BDL
Ethyl Benzene	1	BDL
Xylenes (Total)	3	15
2-Hexanone	10	BDL
Acrolien	1	BDL
Acrylonitrile	1	BDL
1,4-Dichloro-2-butane	1	BDL
Ethyl Methacrylate	1	BDL
Chlorobenzene	1	BDL
2-Butanone (Methyl Ethyl Ketone)	50	BDL
Styrene	1	BDL

Note: Bromofluorobenzene present

(BDL = Below Detection Limit)

Respectfully Submitted,

William F. Eberhardt
Lab Director
Quality Analytical Labs, Inc.

Quality Analytical Laboratories Inc.
"Precision, Accuracy and Service"

Warzyn Engineers, Inc.
ATTN: James W. Wink
1 Pierce Place
Itasca, IL 60143

Job #:1-630
Date: 6/13/1989

Sampling Date: unknown
Analyses Date: 6/6-12/1989
Technique/Method: The samples were analyzed as per USEPA SW-846

Identification: Two samples identified as:

Project Name: Croda Inks Corp
Project #: 40045.03
Location: Niles, IL

Results: Soil Pile #1

	Total Metals	E.P. Toxicity Metals
Cu	NA	NA
Cd	NA	<1.0mg/l
Cr	NA	<1.0mg/l
Pb	NA	<1.0mg/l
Ag	NA	<1.0mg/l
Se	NA	<1.0mg/l
As	NA	<1.0mg/l
Hg	NA	<0.01mg/l
Zn	NA	NA
Ni	NA	NA
Fe	NA	NA
Ba	NA	<50.0mg/l

CN (Tot) ..... <1.0mg/kg
Sulfide (Tot) .. <1.0mg/kg
Chlorine ..... NA
Flashpoint ..... >140 degrees F (Pensky-Martens C.C.)
Paint Filter ... pass
Total Solids ... NA
pH 8.2

PDC Laboratories, Inc.

4349 Southport Rd. • Peoria, IL 61615
309: 676-4693

CLIENT Warzyn Engineering

DATE RECEIVED 06-28-89

DATE OF REPORT 06-29-89

SAMPLE DESCRIPTION Stockpile #1

P.O. NUMBER James Wink

LAB NUMBER 906558

LAB NUMBER	ANALYSIS	RESULTS
906558	Total Phenol	4.1 mg/kg
	EOX	<12 mg/kg

John R. LaPorte (STE)
Laboratory Manager
PDC Laboratories, Inc.

John R. Davis (STE)
Quality Assurance Officer
PDC Laboratories, Inc.